

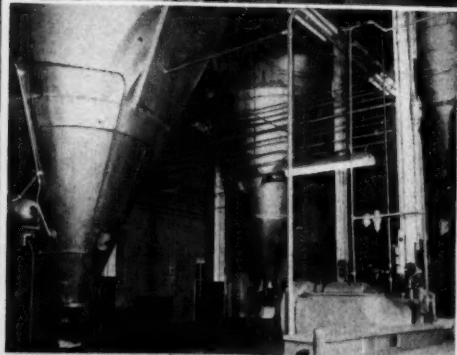
Chemical Week

September 22, 1953

Price 35 cents



► Lehigh researchers learn that complexing with amines can put more zip in paint driers . . . p. 43



Superficial, not fundamental—that's consensus on kinks in new cobalt process p. 45

► The ad is anti-enzymes, but don't overlook burgeoning use of enzymes themselves . . . p. 52



Dye soldrams vanish as textiles renege, but foreign competition is a tough hurdle p. 60

► It takes a team—and lots of teamwork—to build new product sales; here's one way . . . p. 73

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Chemical Week

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September 26, 1953 • Chemical Week

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OPINION



A McClure Newspaper Syndicate Feature
Copr. 1953, Archie Comic Publications, Inc.

Without Chlorophyll

TO THE EDITOR: We got a big kick out of this comic strip when we saw it in the *New York Journal-American*. . . .

We thought you'd enjoy seeing it, too. . . .

T. D. JOHNSON, JR.
Manager

Aerosol Propellant Sales
E. I. Du Pont de Nemours
& Co., Inc.
Wilmington, Del.

Sneering and Snarling

TO THE EDITOR: . . . I see that you are at it again . . . snarling and sneering about toothpaste. You criticized and berated the manufacturers of chlorophyll products . . . you said that they were no good . . . and now, in my opinion you are training your nasty guns on anti-enzymes . . .

Perhaps you haven't enough wit to realize that toothpaste is big business . . . and if additives and formulations can be developed to boost such sales it is good for everyone . . . Let's forget about whether any particular toothpaste is good or bad and realize that all the advertising helps to convince more people that they should brush their teeth . . . that, alone, is beneficial . . .

But you don't seem to consider that . . . You, in some stuffy and unprogressive fashion, seem to prefer that everyone would stick to eating apples . . . or scrubbing with salt and sodium bicarb . . .

Mind you, I'm not saying that you have come right out and condemned anti-enzymes—so don't try to accuse me of being unjustified in this accusa-

tion of mine—but I can detect just what you think and how you feel from how you discuss the subject . . .

RONALD S. CHALLES
St. Paul, Minn.

Modus Vivendi

TO THE EDITOR: I just read the stirring letter by "Name Withheld" (Aug. 29) . . . on racial discrimination . . . and feel impelled to answer him and all others in his predicament.

The problem he touches on is . . . age-old and apparently everlasting . . . transcends both . . . the chemical industry, and national boundaries. Actually, since it is universal in scope, it is but one manifestation of the basic ethical problem of mankind.

The problem: Are we justified in developing and clinging to those ethical ideals that are proclaimed by all major religions, in the face of a society that seems to reward with success only those who disregard these same ideals?

The solution (at least for me): to consider, as challenges, all conditions and practices that are inconsistent with those ideals, and to hold it my personal duty to do everything in my power to defeat them.

The means: hard work, unimpeachable character, courage to face unjustified punishment, and last not least

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

Enroute

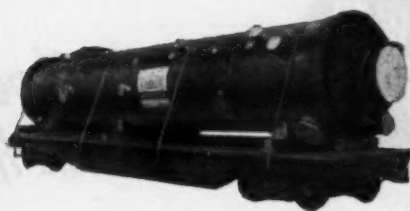
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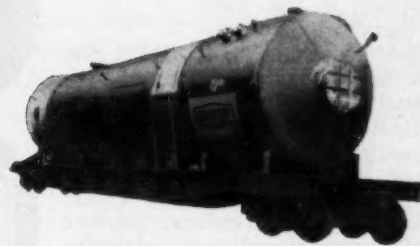
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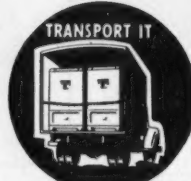
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† User's name on request.

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the willingness to both learn and teach.

The reward: since complete victory in this struggle is obviously . . . beyond the next few generations, the personal reward (to me) is the satisfaction of having contributed, to the best of my ability, in the fight to free men from the bondage of prejudice.

WILLIAM H. SACHS
Chemical Consultant
Atlanta, Ga.

Misapplied Plastics

TO THE EDITOR: I have read, belatedly, your scathing editorial, "A Lot Worse, A Little Cheaper." I am in complete agreement and share your feelings toward the plastics branch of the chemical industry.

Our household pieces have numbered 20 separate "useful extravagances," all of which have been rendered useless by a minor mishap in four months of use.

We have become two fearful future purchasers. We are through . . .

A. T. SAHLI
Cleveland, O.

DATES AHEAD

Textile Chemical Manufacturers Assn., annual meeting, Claridge hotel, Atlantic City, N.J., Oct. 1-2.

Tobacco Chemists Research Conference, annual meeting, Hotel Robert E. Lee, Winston-Salem, N.C., Oct. 1-2.

American Coke and Coal Chemicals Inst., annual meeting, Greenbrier hotel, White Sulphur Springs, W.Va., Oct. 12-13.

Assn. of Official Agricultural Chemists, annual meeting, Shoreham hotel, Washington, D.C., Oct. 12-14.

Commercial Chemical Development Assn., fall meeting, Hotel Kenmore, Boston, Mass., Oct. 15.

American Inst. of Chemical Engineers, South Texas Section, annual technical session, Galvez hotel, Galveston, Tex., Oct. 16.

Salesmen's Assn. of American Chemical Industry, chemical sales clinic, Commodore hotel, New York, N.Y., Oct. 19-20.

Natl. Paint, Varnish and Lacquer Assn., annual meeting, Chalfonte-Haddon Hall, Atlantic City, N.J., Oct. 26-28.

Assn. of Consulting Chemists and Chemical Engineers, annual meeting, Belmont Plaza hotel, New York, N.Y., Oct. 27.

American Oil Chemists Society, fall meeting, Sherman hotel, Chicago, Ill., Nov. 2-4.

BRITONS CAN HAVE PROSPERITY — If They Want It

What is required to get Britain, our key ally in the grand alliance of the free world, firmly back on her economic feet? The purpose of this message is to throw light on this crucial problem, which afflicts our other European allies also.

At the moment, Britain is enjoying a respite from the economic crises (of 1947, 1949 and 1951-52) which have plagued her post-war course. This respite may well continue for some time. But almost no one whose judgment is trustworthy believes that Britain has acquired sufficient economic strength to safeguard her against further economic crises in the years immediately ahead.

Two British Views

New and clear light on what should be done to that end has recently been shed by two noteworthy British publications. One is a book, "We Too Can Prosper," by Graham Hutton, distinguished British economic writer and administrator. The other is an article, "The Riddle of Prosperity," published by THE (London) ECONOMIST, Europe's most eminent economic journal.

Combined, these two publications present

in sharp relief the basic problem that must be handled successfully if Britain is to be safely solvent. As is implied by its title, *the Hutton book demonstrates that Britain can be made prosperous by readily feasible procedures, patterned on what has been done in the United States, to increase its industrial efficiency. But, says THE ECONOMIST, with Mr. Hutton's book in mind, this is not the most basic problem, which is, "How shall we make the British people determined to be prosperous?"* This is a problem of incentive or motivation.

Compared with that of the United States, average industrial efficiency in Britain, as in most of Western Europe, is low. In his book Mr. Hutton remarks that "fifty years ago an American industrial worker turned out roughly the same amount in a day as his opposite number in Britain, Germany or France. . . . Today, he turns out from two to five times as much."

In large part it is this lag in output per hour or "productivity," as the technicians call it, which makes Britain and other key countries in Western Europe a continuing prey to economic crises. Moreover, the great disparity in productivity between the U.S.A. and most

of Western Europe is a major barrier to knitting the free world into a smoothly working economic whole. As one observer put it, "when the American economy catches a cold, the European economy gets pneumonia." This is largely because Europe is so much weaker in productive strength.

No Shortage of Knowledge

Yet, the knowledge which would enable the countries of Western Europe, and particularly Britain, to increase their industrial productivity has been mobilized and is readily available to them. It is with this process for Britain that Mr. Hutton's book is concerned. In the book he summarizes the findings and conclusions, virtually all of them unanimous, of 66 teams, composed of British industrial managers, technicians, shop workers and labor leaders. Over a period of three years these teams completed a comprehensive series of inspection and study trips in the United States under the sponsorship of the Anglo-American Council on Productivity. The product of that effort, he remarks, is "a set of documents the like of which, on such a scale and of such practical value, has never been seen in the history of international and cultural borrowing."

Psychology the Key

From study of these documents, Mr. Hutton concludes that better capital equipment is the key technical ingredient of higher industrial productivity in Britain, and constitutes "the most urgent . . . need of British industry." But he finds that *even without new capital equipment a "15% rise in productivity can still be achieved by reorganization of work," and that such an increase would "solve Britain's chief social and economic problems."*

Then why is not such an increase in productivity, demonstrated by the Anglo-American

productivity teams to be so clearly within technical grasp, promptly forthcoming? Mr. Hutton, quoting one of the team reports, remarks that, "*the greatest obstacles to increased productivity are psychological rather than technical.*" We have to deal first and foremost with men, not machines." And THE ECONOMIST, pursuing the line of inquiry suggested, reaches the conclusion that, by and large, the people of Britain do not want to prosper by being more efficient. THE ECONOMIST says:

"The real secret of American productivity is that American society is imbued through and through with the desirability, the rightness, the morality of production. . . . But in Britain, if any moral feeling at all survives about economic matters, it is usually a vague suspicion that economic success is reprehensible and unworthy. From this difference in attitudes everything else follows."

"How," asks THE ECONOMIST, "*shall we set about restoring some belief in the rightness of effort, the morality of success?*" For this question it has no ready answer. Neither have we. We are confident that the British people will neither be cajoled nor coerced into trying to match our productivity. Basically the problem seems to be to demonstrate clearly to them the truth of the proposition, set down by Graham Hutton, that "there is no goal, aim or end before a Good Society which the raising of that society's material productivity cannot render easier of achievement." Doing that in an old and settled country like Britain is obviously an extremely formidable undertaking. But *until it is done, the crucial job of getting Britain and the rest of Western Europe firmly on its economic feet will remain to torment all of us.*

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HOOKER SULFIDES

SODIUM SULFIDE

Formula: Na_2S

Appearance: Light, buff colored solid
in flake form

TYPICAL PROPERTIES

Molecular Weight	78.1
Melting Point	100° C
Na_2S	60-62%
Water of Crystallization	35% min.
NaCl	1.5% max.
Other Na Salts	2.0% max.
Fe	8 ppm max.
Other Heavy Metals	1 ppm max.

USES

Dehairing Agent: Hides
Desulfurizing Agent: Viscose rayon
Intermediate: Chemicals, dyestuff intermediates
Metal Processing: Ore flotation, metal refining
Other Uses: Manufacturing paper pulp, rubber, textile processing.

SODIUM SULFHYDRATE

Synonym: Sodium Hydrosulfide

Formula: NaSH

Appearance: Light lemon colored solid
in flake form

TYPICAL PROPERTIES

Molecular Weight	56.1
Melting Point	55° C
NaHS	70 to 72%
Water of Crystallization	26% min.
Na_2S	2.5% max.
Other Na Salts	1.2% max.
Fe	5 ppm max.
Other Heavy Metals	1 ppm max.

USES

Dehairing Agent: Hides
Desulfurizing Agent: Viscose rayon
Intermediates: Dyestuffs; organic chemicals such as thioamides, thiourea, thioglycolic acid, thio- and dithiobenzoic acids, sodium thiosulfate.

SODIUM TETRASULFIDE SOLUTION

Formula: Na_2S_4

Appearance: Clear, dark red aqueous
solution

TYPICAL PROPERTIES

Molecular Weight	174.2
Freezing Range	3.5° to -17° C
Distillation Range	115° to 120° C
Specific Gravity, 15.5°/15.5° C	1.335
Na_2S_4	40%
Sulfur	30%

USES

Soaking Agent: Hides and skins prior to unhairing
Reducing Agent: For organic nitro bodies
Reagent: Ore flotation
Intermediate: Sulfur dyes

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NEWSLETTER

With its financial backing stronger by \$8 million, "squeeze bottle"-making Plax Corp. (West Hartford, Conn.) will likely become a bigger, more diversified producer of plastic fabrications.

The new capital comes from Owens-Illinois Glass Co. (Toledo), which put up the money last week right after Federal Judge Frank Kloeb ruled that the investment would not violate terms of his 1942 decree in the government's antitrust suit against major glass firms (CW, July 11).

Plax was heretofore a wholly owned subsidiary of Emhart Manufacturing Co.—also of Toledo, also deep in the glass business. Now Emhart and Owens-Illinois each hold 49% of Plax common; the other 2% will probably be sold to top management men at Plax.

Plastics are also at the root of another joint venture: Minnesota Mining & Mfg. has acquired Gustin-Bacon Mfg. Co.'s patents on glass fiber-reinforced plastic pipe, and both firms will cooperate on research and development. Whether Gustin-Bacon will eventually manufacture and sell plastic pipe is still indefinite, but the 3-M Co. plans to make it as soon as development work has been completed.

3-M will soon start to build a pilot plant, will undertake a three years' application development program.

Here's some data on the pipe as of now: It's not a polyester—various resins are being tried, and the eventual choice may well be a fluorocarbon; current pipe has 60,000 lbs. tensile strength and 3,000 lbs. bursting strength, is highly corrosion resistant, is one-eleventh the weight of comparable steel pipe, can be heat-welded in the field (although it's more likely that couplings and fitting will be used instead); it is expected that commercial pipe will be made in 4 to 24-in. diameters, will withstand temperatures over 300 F.

A partial acquisition reached its goal last week as W. R. Grace succeeded in corraling over 51% of Davison Chemical's outstanding common stock. It owned 29% until it decided to go out after more by offering \$40 a share—a few dollars over the prevailing market price.

Also, Grace's stockholders approved proposals paving the way for further acquisitions and mergers. One amends the charter to authorize issuance of up to 600,000 shares of common stock in exchange for assets of other businesses. Another raises the capital stock limit from \$60 million to \$100 million and authorizes the concern to merge other firms into itself.

There's news, too, of expansion—both organic and inorganic:

- Du Pont will shortly undertake a \$3-million mine and plant to produce ilmenite, raw material for titanium metal and pigments, near Lawtey, Fla. Output will be about 100,000 tons/year, and operation is expected by early 1955. Actually, the plant will be built and operated for Du Pont by Humphreys Gold Corp. (Denver), which developed a process for exploiting low-grade (2% ilmenite) ore.

- Koppers will build a plastics development plant at the site of its Kobuta (Pa.) works. It will produce semicommercial quantities of various new plastics for applications development.

Here are some new organic phosphorus compounds to take a look at. Virginia-Carolina is pioneering commercial production of dialkyl alkylphosphonates; first ones ready are diethyl ethylphosphonate, the corresponding one with three butyl groups, and the one with 2-ethylhexyl.

Similar to V-C's trialkyl phosphates, the new materials are less toxic, more heat-stable, have higher flash points. Uses? That's a question for researchers, but they've been suggested for plasticizers, synthetic lubricants, extreme-pressure lube additives, flame retardants, textile treating agents and heat-transfer media.

•

Whenever power is short in the Pacific Northwest, abuse is heaped on aluminum producers because they have a substantial share of Bonneville Power Administration's firm power sewed up. This is all wrong, expostulates the Inland Empire Waterways Assn. (Walla Walla) in a just-issued pamphlet on aluminum's role in the Northwest economy.

Chemical makers among others get cheaper power, contends the association. "The over-all effect of aluminum reduction . . . is to create lower power rates for other users." Also, aluminum's total firm-power take has been dwindling—from 62.9% of BPA's output in 1946 to 29.9% last year.

•

It takes natural gas to support and extend a petrochemical industry. That's why the Louisiana State Board of Commerce and Industry has appointed a committee to see what can be done to assure sufficient gas for new petrochemical plants. The problem is that out-of-state users want to buy Louisiana gas, and they don't put money in Louisiana workers' and merchants' pockets; moreover, federal law prohibits restrictions on interstate shipment.

•

Sulfur is another Southwest problem. Texas firms making sulfur from sour gas contend that their output is not subject to the state's \$1.40-per-long-ton sulfur levy, but the state says sulfur is sulfur, regardless of how it is produced.

Phillips Chemical has brought suit, to be heard in District Court (Austin) next week. Phillips, together with nonsuing Shell, Gulf and Stanolind, have paid over \$100,000 taxes under protest.

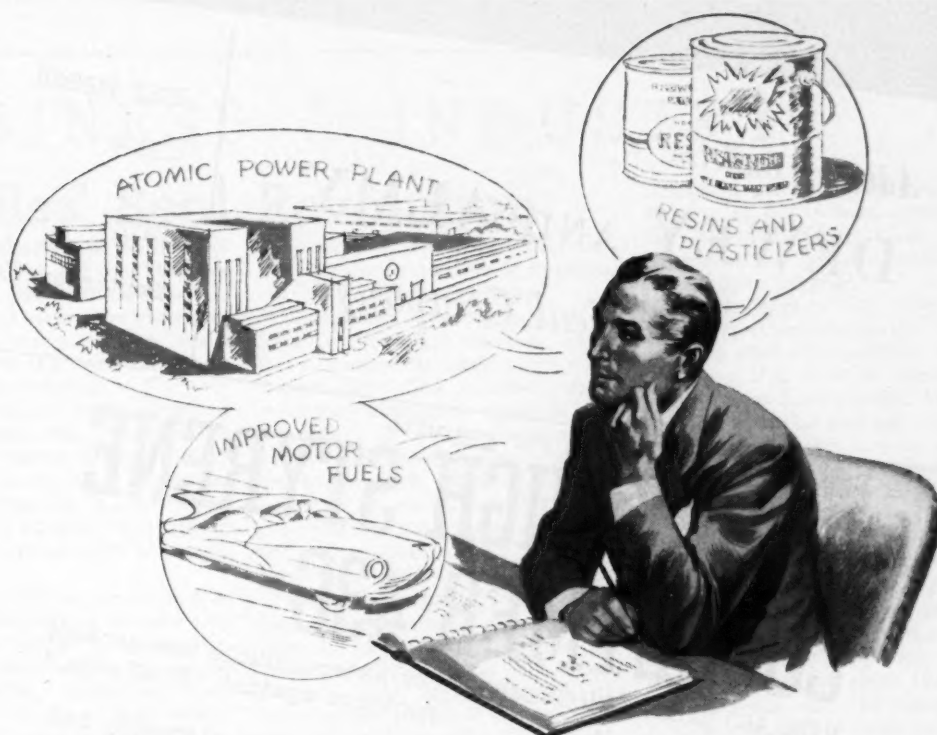
The tax hasn't been much of an issue to date, since production of sulfur from sour gas has been small. But this year's output, says the state's attorney general, will quadruple last year's.

•

Pollution continues to be a sticky problem for policed and policeman alike. Port Arthur (Tex.) Menhaden Products' "stickwater" plant, which processes menhaden wastes into oil and fish solubles, shut down voluntarily last week after town residents complained about the odor. The plant has tried various means of deodorization—none of them effective. Whether the plant reopens depends on the outcome of a meeting between the firm's board of directors and local citizens.

And in Niagara Falls, apparently nobody wants the job of directing the Air Pollution Control Dept. The previous director resigned a year ago, and the job has since been done on a part-time basis. The city has advertised extensively for a replacement, but no graduate engineer (preferably chemical) has come forward.

. . . The Editors



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Advance Bulletin

DEWEY AND ALMY Chemical Company

FILE NUMBER

43G-9

DATE

September 1953

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BUSINESS & INDUSTRY

Textiles' Real Revolution

The textile industry is in the midst of a revolution. But this isn't the one—the switch from natural fibers to synthetics—that has been predicted for so long. The current transition, nonetheless, was in the main sparked by the advent of synthetics.

The real revolution in the oft-erratic and ne'er-predictable textile field is seen in the ever-increasing range of fabric types, hands, colors, resiliencies and crease resistance—a result of diversity of uses for every fiber and the burgeoning substitutability of one for another.

It's summed up by one textile sales manager: "Not too long ago, our wool fabrics were almost by themselves. Now we're competing in one market with wool-nylon, wool-Orlon, rayon and acetate blends and even cotton." And his list is conservative.

The revolution's two factors are engineering and chemical. Chemically, there is the development of new fibers, dyes, resins and finishes, dope-dyeing processes for rayon, acetate, dynel and Orlon, and chemical modification of natural fibers. Equally responsible are engineering achievements, from the development of new fabric constructions, to the invention of new dyeing equipment.

Such transitions are already bringing further changes in the interfiber competitive picture. This week, with textile buying for next spring's apparel in full swing, is a good time for synthetic fiber makers and textile chemical producers to assess the situation.

General Picture: There is no consistent pattern for the whole industry. Cotton mills are booked to capacity; rayon mills are in generally good shape; wool is spotty.

The situation on synthetics themselves can best be described as transitional—from "gimmick" to accepted fiber. The switch, because of unfortunate occurrences last spring, hasn't been too smooth. Last fall, first large-scale Orlon production was coming on the market. Dyeing techniques then were suited mainly to production of light pastels. Cloth in such pastels was avidly purchased by apparel makers, expecting to cash in on the novelty value of the fiber. But consumers didn't buy pastels, and inventories piled up. Then, at about the

same moment, Du Pont, dissatisfied with the dyeing qualities of its staple, changed over to a new type.

Chemstrand, when it brought its Decatur, Ala., plant onstream, found that its production didn't match pilot-planted fiber. This in turn brought production almost to a standstill.

Neither of these developments helped acceptance of synthetics by the textile trade, though Du Pont feels that its efforts since April have done much to boost Orlon acceptance and Chemstrand has reportedly ironed the wrinkles out of its process.

The Other Hand: These events have almost obscured the successes of other fibers. Du Pont's Dacron has found acceptance in the men's summer suit field, hopes to crack the considerably larger all-year market, and make a bigger entry into women's wear fields.

Union Carbide, while it continues to produce its part-acrylic dynel, has not actually started construction of a full-scale plant. Cyanamid, with its X-51 acrylic in pilot production, is also conducting evaluations on its fiber. While it has optioned several possible plant sites, it has not as yet decided whether to take the final plunge.

There are several other companies with fibers under evaluation; none is believed as far along as Cyanamid.

Certainly, though, these synthetic developments should not be allowed to becloud the progress of natural fibers. Perhaps the biggest advancement here is the T-7 modification for cotton (CW, Sept. 5), which improves cotton qualities by treatment with acrylonitrile. Cotton has a major economic advantage in its cheapness.

Trade Tussle: One item that could bring a considerable change in the competitive picture is the present hassle over wool import tariffs.

President Eisenhower has ordered the U.S. Tariff Commission to determine whether wool imports are interfering with the Dept. of Agriculture's price support program, or are substantially reducing the use of domestic wool. Local wool growers are asking that a 12-15¢/lb. special fee be imposed on wool imports in addition to the regular 25½¢/lb. tariff. They claim that imports are responsible for

stagnating domestic wool production and for the big backlog acquired by the Commodity Credit Corp., which is responsible for maintaining the price support program.

Opponents of a duty hike argue that the real reasons for the drop in domestic production are not imports but rising U.S. costs as pasture and labor become harder to get. Much of the local wool that goes into top quality fabrics, they say, does so only because it is upgraded by high-grade wools from such places as Australia. Increasing the duty on wool imports would put the fiber at a further competitive disadvantage.

Target of the price supports set up under the agricultural act of 1949 was a yearly domestic production of 360 million lbs. The output hasn't reached that figure since 1943; the 1952 clip was only 232 million, and 1953 is estimated to reach only 229.

With declining U. S. Production the percentage of consumption in which imports have been predominant is rising. Imports now make up over 70% of our consumption.

Test Ahead: The Tariff Commission's decision on the wool duty will be something of a test case. It will be among the first decisions to be handed down since the new administration appointed two new protectionist members to the commission.

It's too early to say which way the decision will go. The administration is split on the issue. USDA, under heavy pressure from wool state senators, favors a hike. On the other hand, Eisenhower is reported to be opposed. And the State Department, having been urged just a week ago at the meeting of the International Monetary Fund not to let the government take any new protectionist steps, is sure to fight a boost.

Disinterested industry observers have seriously questioned the wisdom of U.S. wool growers in asking for the higher rates. The economic relief that such action would give them would be a short-term one at most.

With the new textile revolution here—and with the greater interchangeability of the many fibers that it has brought—they feel that the time may almost be here for every fiber producer to start getting his house in order. It looks as if synthetic producers may easily profit from the woes of the wool growers.

Out of Chaos—Order

Swamped by a rising flood of muddled insurance problems that seem to grow more complex yearly, some chemical processing firms are trying a neat means of gaining firm ground. Their approach: creation of a new corporate position—the insurance director, whose job it becomes to coordinate all company policies into some sort of cohesive system, under the guidance of the company treasurer.

The trick, say the insurance directors themselves, is to tread a path between a system that's not in too violent conflict with policies already extant, and a plan that's revolutionary, lest the pitfalls encountered when a merger is afoot get out of hand.

Actually, the conception of the insurance director isn't new to industry at large. The textile business, for example, can cite a number of companies that have tinkered with the idea for over a decade. Deering-Milliken & Co., Inc., mapped out its program with the help of outside insurance counsel 10 years ago. Basic objectives were then established, have been subjected to only minor modification since.

U.S. Plywood Corp. owes its system to a company treasurer, John Schlick, who joined Plywood some three and a half years ago, saw the vital need for some workable arrangement under a single authority, and launched his project accordingly.

Nobody Responsible: At the time, there was nobody specifically respon-

sible for insurance at Plywood. When a new building at any plant was slated for construction, someone in charge called his local friendly broker, bought whatever seemed necessary and appropriate for the situation obtaining at the time.

Schlick recognized the lack of system, guessed that the cost in dollars to Plywood was considerable. Independent consultants were called in, who surveyed the entire field of property coverage and individual policies. Their opinion: as a result of the shopping expedition, Plywood could cut its annual insurance costs between 25-30%.

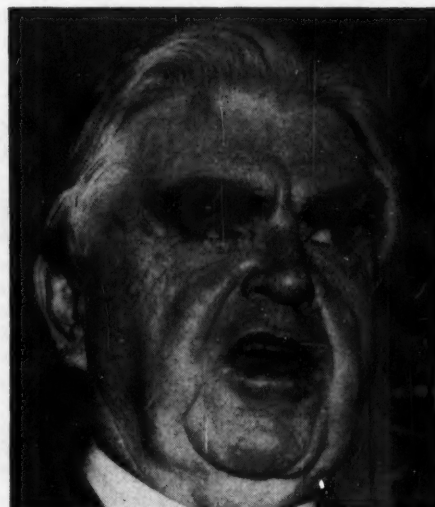
Typical of the inconsistency they found: in one plant all motors were heavily insured. In all others no coverage had been provided. What Plywood, in effect, was betting on with such a system was that one particular plant in one particular locale would go up in flames; that all others would rust away quietly. Now the standard's been set. All motors in all plants under 100 horsepower remain uninsured; all others are secured at specific rates.

In individual policies, as well as property coverage, the saving involved appeals to everyone. Health insurance as well as life insurance rates (because of the volume involved) are benefited. It's just a matter of education, Plywood says, to get people to jump on the bandwagon.

Recent Convert: Olin Industries, Inc., is a more recent convert to the fold. Its insurance director, Bion H. Francis, former secretary of the Massachusetts Insurance Buyers' Assn., formerly took over coordination of the insurance activities of all eight operating Olin divisions (as well as affiliated and subsidiary companies) last August. His problems: to integrate over 1,000 different types of insurance policies.

To pave the way for his mission, Olin officials last year distributed an executive bulletin spelling out the dimensions of his task. Trying to justify the need for reorganization insurance-wise is simple, they found, when you stop to point out the kind of hodge-podge conditions that exist. A breakdown serves another purpose, too: resistance at all levels to change is considerably lessened "by a gradually awakened awareness of the problems that confound management."

Close scrutiny of insurance matters by other chemical companies is a trend that bears watching.



MINE WORKERS' LEWIS: He raided AFL to get chemical workers; later, they revolted under...

Chemical Union

Born in strife, raised in strife, and now thriving on a steady diet of more strife—that's the United Gas, Coke & Chemical Workers of America (CIO), a tough-tomcat kind of labor union that right now is sharpening its claws for an even more combat-filled organizing drive this fall and winter.

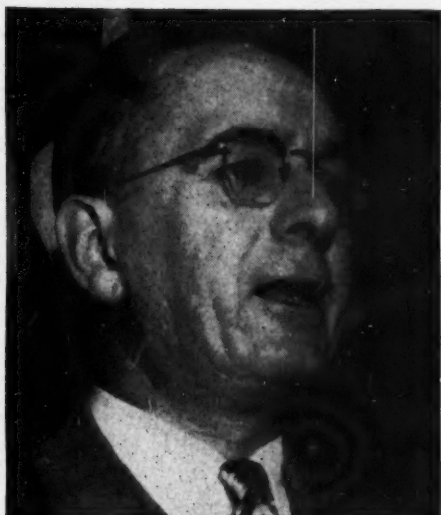
It's not a mean streak that impels Gas-Coke into its frequent battles; the situation appears to be, rather, that it has to fight for its continued existence. To subside into peaceful complacency probably would spell its end as an autonomous union; if Gas-Coke fails to prosper and grow, the CIO might merge it into the larger Oil Workers International Union. If CIO and AFL ever do carry out their professed desire for unification, and unless Gas-Coke so gains in size and strength that it can merge on equal terms it might be swallowed up by the AFL's chemical union (CW, Aug. 29).

Pride and Politics: Besides self-preservation, two other motivations keep Gas-Coke in the role of a scrappy union. One is that its members feel—more strongly than most other unionists—that a labor union should be a crusader for the workers' welfare, not just an easy-going intermediary. And this being so, the officers have an incentive to be aggressive; specifically, first-term Pres. Elwood D. Swisher will want to have a good record of action and accomplishment when he calls the union's seventh constitutional convention to order next September in St. Louis.

Hence it's not surprising that Swisher has taken over his union's "director of organization" job himself



OLIN'S FRANCIS: Will manage company divisions, subsidiaries as one.



CIO LOYALIST WAGNER, who organized CIO Chemical union, served as chief until beaten by . . .

On the Warpath

(*CW*, May 9) and has arranged with CIO headquarters for a more energetic organizing campaign in the chemical industry.

Immediate goals in this drive are to snare collective bargaining rights at newly built plants, win recognition at "hold-out" plants so that Gas-Coke will represent all or nearly all employees of certain multiplant companies, and to bolster Gas-Coke's membership strength in certain key geographical areas.

Early Fruit: This Swisher-sparked organizing campaign already has borne fruit. Gas-Coke victories in this week's labor news illustrate how this bantam union (1952 paid membership was 68,000) is perpetually locked in conflict with other unions as well as against employers:

- Gas-Coke took a bargaining agency away from the giant AFL Teamsters Union when employees of Transparent Package Co., Chicago, voted 206-62 to switch to Gas-Coke after 15 years with the Teamsters.

- Former members of what Gas-Coke contemptuously called a "company union" turned to Gas-Coke in a 100-26 vote among mechanical division employees at Merck & Co., Rahway, N.J.

- Although they had been represented by District 50, United Mine Workers, for the past 12 years, Certain-Teed employees at Blue Rapids, Kan., balloted 79-18 to go under the Gas-Coke banner.

- Continuing its move into the atomic energy field, Gas-Coke won bargaining rights for fire fighters at the atom plant being built at Ports-



GAS-COKE'S SWISHER, onetime overhead crane operator for Carbide, who has launched more forceful organizing drive, promises fight to protect workers' gains.

mouth, O., and recently negotiated the first labor contract at that plant.

Warlike Origin: Gas-Coke sprang up in a warlike environment. Its ancestral locals originally had been organized by the AFL as "federal unions" composed of various kinds of workers and craftsmen. Those federal unions were captured by fiery John L. Lewis when he set up the "catch-all" District 50 of his UMW, which then was in the CIO.

But the chemical workers and their leaders got restless in District 50 because, they said, the UMW was too authoritarian; they weren't given a chance to manage their own affairs. They were chafing for revolt, and their opportunity came right after the 1940 election, in which Lewis had supported the late Wendell L. Willkie. Lewis handed the CIO presidency over to the late Philip Murray and took his UMW out of CIO.

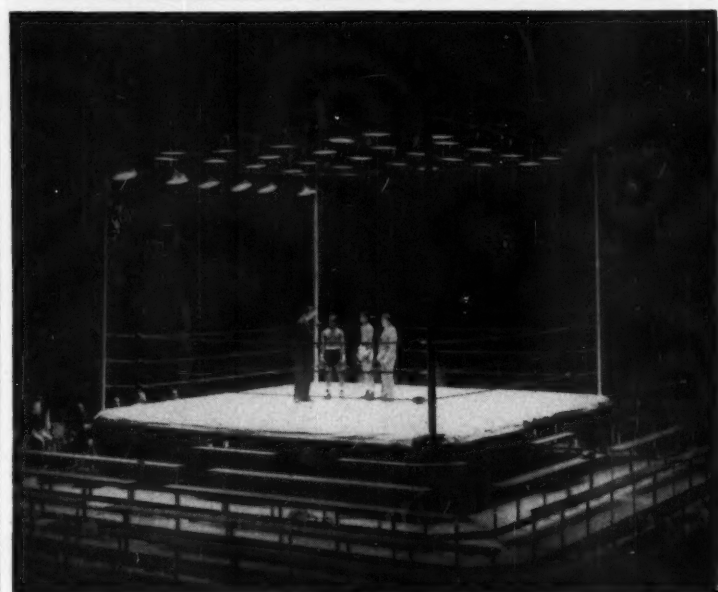
That was the end of Lewis' sway over these chemical workers. Their next chief was Martin Wagner, at that time head of District 50, who led the gas, coke and chemical group out of the UMW. They knocked at the CIO door, and about one year later were admitted. First convention of the new union was in Sept., '42, at

Niagara Falls, N.Y., at which Wagner was elected president by delegates representing about 5,000 workers. Cecil Martin, until then president of a District 50 local at American Cyanamid's plant in Joliet, Ill., was elected secretary-treasurer, a post he still holds. Joseph Joy, veteran union organizer, is serving his third two-year term as vice-president.

Civil War, Too: As if the struggle against outside foes weren't enough, Gas-Coke has kept in trim with not one, but two, internal brawls. First was the successful fight to purge the union of communists, allegedly headed by Charley Doyle, one of the Gas-Coke founders and wartime vice-president. Wagner, Joy and Swisher led the drive that resulted in expulsion of left-wingers at 1948's convention.

The very next year, another internecine clash came up when C. W. Danenberg, director of Gas-Coke's Southern district, launched a secession movement. This was nipped before it carried away too many members, but the tiff left some ill will in its wake.

No brawl but a more orderly uprising occurred during last year's convention in Chicago (*CW*, Sept. 6, '52), at which delegates unseated Wagner and installed as their second



New Look at the Garden

SOMETHING NEW in boxing rings—novel market for a chemical process metal—checked in at Madison Square Garden this week for the heavyweight championship bout between Rocky Marciano and Roland LaStarza. The ring, reports Aluminum Co. of America, is portable, consists of 7,500 lbs. of

aluminum, can be erected in eight hours by a dozen men. Framework under the ring, superstructure, corner posts and supports that hold the press writing tables are all made of the lightweight metal—all standard production items. Time of erection is chopped in half; manpower required is sliced 25%.

president Swisher, who promised more vigorous organizing efforts. Swisher had entered the chemical industry as overhead crane operator at the Alloy, W. Va., plant of Union Carbide's Electro-Metallurgical Division; became treasurer of his local union, then a Gas-Coke international representative; and now, at 40, is one of the youngest union presidents in the nation.

Swisher's zeal and temperament seem to make him well-suited to be top man in a fighting union. His attitude comes out in his recent reply to critics who accused Gas-Coke of "living in the past" when union spokesmen warned members about the "robber barons" of management.

"Union representatives who fight adamant and antagonistic company spokesmen at the bargaining table, who find themselves hemmed in by company-procured injunctions, and who have to battle the employer and his fat pocketbook at the ballot box and in the legislative halls know," Swisher declares, "that many employers are biding their time for an all-

out assault on the unions and their economic gains."

If belligerence is an asset, it would appear that Gas-Coke is well-heeled.

COMPANIES.

Decisions to start up and to shut down operations were made this week:

- The Crane Co., receiving the permission from the Office of Defense Mobilization to transfer its proposed \$25-million titanium plant from Nashville to Chattanooga, Tenn., also obtained a \$6-million building permit from local Chattanooga building department officials. The permit officially names Cramet, Inc., Crane's wholly owned subsidiary, as owner and operator, says the plant will include some 20-24 buildings, "will be started shortly."

- Du Pont's Lyndonville, N.Y., plant (manufacturing insecticides, fungicides, and several other industrial chemicals) plans to close up before year's end "to centralize similar operations." Operations have been

continued at Lyndonville for 21 years, Du Pont spokesmen say—ever since the company bought out the firm of Barry Lime and Sulphur.

Incorporations continue:

- Penland Mining Co., Inc., Newland, N.C., incorporated at Raleigh with an authorized capital stock of \$100,000. Proposed activity: to engage in mining mica, other minerals.

- Borolite Corp., Wilmington, Del., filed a charter at Dover, Del., with a listed capital of \$125,000.

- Tyrex Chemical Corp., Dover, also filed a charter at Dover. Capitalization isn't listed.

EXPANSION

Methyl Mercaptan: Thiochemicals, Inc., of Port Arthur and Houston, Tex., will build a \$500,000 plant at Port Arthur to produce methyl mercaptan from hydrogen sulfide. Cost of the plant site: \$18,000. Arrangements have been made with the Atlantic Refining Co., company officials claim, to pipe waste gases from its nearby refinery to the proposed plant. Processing is due to start from pilot-plant operations early next year, "and with the elimination of manufacturing bugs," full production can be expected within two years.

• **Plastic Cable:** The Superior Cable Corp. has signed a long-term lease with a group of Hickory, N.C., businessmen to build a \$150,000 plant at Hickory to manufacture plastic telephone cable.

The investment will be financed by Hickory businessmen seeking to draw new industry to the area; the cable firm holds an option to purchase the plant at the expiration of the lease.

• **Lime:** Chemical Lime, Inc., a newly formed company, plans to start production shortly of chemical-grade lime, at Baker, Ore., at an annual rate of 66,000 tons. The company, capitalized at \$500,000, acquired its property at Marble Creek last September. Kilns designed to triple production are proposed for installation next year.

• **Plastic Resins:** The Varcum Chemical Corp., Niagara Falls, N.Y., will start building a \$500,000 plastics resins manufacturing plant soon, plans to be in operation early next year. A deed, transferring the plant site from the Kansas City Industrial Land Co. (a subsidiary of Union Pacific R.R.) to Varcum has been filed with the Wyandotte County registrar of deeds.

U.S.I. CHEMICAL NEWS

September 26 ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

★ 1953

ATTENTION

Users of Taxfree and Specially Denatured Alcohol

Now is the time for users of specially denatured alcohol to renew their basic permit (Treasury Department Form 1479) for 1954. It is also time for users of Taxfree alcohol to complete and file with the Assistant District Commissioner — Alcohol and Tobacco Tax Unit — their application (Form 1450) for renewal of their Taxfree Alcohol permit for 1954. If you require forms or any assistance in their preparation, please call your nearest U.S.I. office.

New Instrument Analyzes Particle Size Distribution

A newly designed instrument which is said to quickly and accurately determine particle size distribution of powdered materials is now in production, according to a recent announcement. A high precision instrument, the device is expected to be of interest to industries handling such materials as pigments, metal powders, cements, abrasives, ceramics, drugs, insecticides, cosmetics, and many other finely divided substances.

The new instrument utilizes a technique in which powder particles are dispersed in air and allowed to settle by gravity through a tube onto an electronic balance. The balance yields a continuous record of the weight of powder settled, plotted against time. A particle size distribution curve can then be obtained from this data.

The instrument provides continuous data, and time for a test can be reduced to as little as fifteen minutes, it is said.

Ion Exchange Resins Aid Migraine Victims

Using exchange type resins, doctors have succeeded in bringing relief to long-suffering victims of migraine headaches, a recent scientific meeting was told. According to the report, laboratory findings have shown that artificially produced convulsions are marked by an excess of sodium and a deficiency of potassium in the brain. Doctors found that ion exchange resins which can replace sodium with potassium, when given orally with meals, relieved patients with disabling headaches. Similar treatments reduced the number of seizures in patients suffering from epilepsy, it was said.

New Stainless Products

A booklet describing new types of stainless alloy products having applications in the oil, chemical, and petro-chemical industries has been issued. Products include gas turbines, ceramic coatings, expansion joints, etc., many of which are being made available to these industries for the first time, it is said.

Uses for Sodium Dispersions Continuing to Expand

New U.S.I. Booklet Reviews Developments to Date, Describes Laboratory and Plant Scale Equipment. Another Booklet Covers High Surface Sodium on Inert Solids

Three years ago, the Research Division of National Distillers developed simplified methods for dispersing sodium as microscopic particles in various solvents. Laboratory and pilot-plant work revealed a high industrial potential

for these dispersions which has been confirmed by actual plant usage: Dispersions cut reaction time drastically, lower reaction temperatures and increase yields. Moreover, reactions can be controlled easily by adjusting flow rates.

Link Methionine with Vitamin B₁₂ Synthesis

Another link in the relationship between methionine and vitamin B₁₂ has been established by recent research with biochemical mutants—variant strains of the same type bacteria. Using mutants which required methionine for optimal growth, it was found that B₁₂ was the only other supplement among those tested that also stimulated growth of the bacteria. These results were interpreted as support for the view that there are metabolic inter-relationships between methionine and vitamin B₁₂.

Latex Plus Cement Yields New Construction Material

New types of concrete materials—obtained by adding special latex-water emulsion binders to a dry cement base—are reported to last indefinitely and to adhere to steel, glass, wood, stone, or other concrete "as firmly as if they were made together." Now available for construction and maintenance use, the materials can be applied directly without special preparation to metal decks, stairs, pipe joints, and coverings. The company states that finished installations stand up under heavy vibration or impact. The new concrete can also be used as flashing, putty, or caulking compounds, or as a non-shrinking mortar for setting tile, marble, brick, etc.

Another advantage cited for the products is that they can be colored in an unlimited range during mixing, and they can be coated with paint, shellac, or varnish when dry.

List Research Monomers

More than 300 different monomers and polymers available for research purposes are listed in a recently published catalog. The majority of the products are not obtainable elsewhere, it is said. Although many of them are available only in research quantities, commercial production is possible wherever interest is sufficient. Separate sections on catalysts and accelerators, monomers for polyelectrolytes, substituted ethylenimines, and cross-linking agents are included in the listings.



A 15-gallon Dispersator unit used in plant or pilot-plant preparation of sodium dispersions.

This month, National's U.S.I. Division is releasing a comprehensive booklet on developments in sodium dispersion preparation and usage over the past three years. It is expected that the applications and methods covered, as well as details of equipment, will be of considerable interest to all chemists and chemical engineers.

Booklet Covers Many Types of Reactions

The utility and commercial value of sodium dispersions are covered by detailed discussions of many types of sodium reactions. For example, present commercial methods for the production of ethyl acetoacetate require 20 hours reaction time. This may be shortened to less than two hours using highly dispersed sodium and increased temperature. Practically quantitative yields of the ester, based on sodium, are possible by this means.

The new method involves the rapid reaction of dispersed sodium (50% in toluene) with ethyl acetate in an excess of refluxing ethyl acetate at 78° C. The sodium is dissolved in a few minutes, and the reaction can be com-

MORE

September 26

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U.S.I. CHEMICAL NEWS

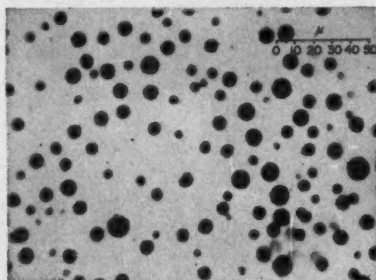
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1953

CONTINUED

Sodium Dispersions

pleted quickly at 100° C. Run in one stage at 78°, the reaction yield is 70-85%. In two stages, the yield is nearly theoretical.



Photomicrograph of dispersed sodium particles. A micron scale is super-imposed.

Commercial Organosodium Compounds

Organosodium compounds, important tools in organic synthesis, now can be made commercially by the use of sodium dispersions. Such compounds undergo: 1) addition reactions, e.g., CO₂ gives acids; 2) Wurtz reactions with organic and inorganic halogen compounds; and 3) metalation reactions, e.g., toluene yields benzylnatrium.

The rapid preparation of phenylsodium from freshly dispersed sodium and chlorobenzene illustrates the simplicity and economy of producing organosodium derivatives. If sodium is present in 10-15% excess, the yield of phenylsodium based on chlorobenzene is quantitative. The reagent may be prepared in a variety of media, such as pentane, heptane, kerosene, benzene, toluene, ethylbenzene, or mixtures of these. Quantitative yields can be obtained in 20 to 30 minutes reaction time. Sodium dispersions permit complete regulation of such exothermic reactions and avoid the older practice of mixing together excesses of highly reactive ingredients.

Prepared by High Speed Stirring

High speed stirring is probably the most

Paving Material Additive Keeps Ice, Snow Off Roads

The development of a chemical solution, said to become activated by a drop in temperature and to produce a surface heat sufficient to melt snow and ice from concrete and asphalt pavements, was reported recently. The solution, which was developed abroad, is mixed with road building materials when the pavement is laid. Tests are said to have shown that it can melt three inches of snow in 90 minutes and that it can keep ice from adhering to roads at temperatures as low as 36 degrees below zero.

The chemical formulation has not been disclosed, but it is reported to be an alkaline mixture whose ingredients are in adequate supply. It is currently undergoing tests by an American firm prior to marketing and licensing.

convenient method for preparing a finely divided sodium dispersion. A readily available stirring head known as a "Dispersator"—in both laboratory and production sizes—has proved extremely efficient and has made possible the duplication of development work on a plant scale.

For laboratory preparation, a two-liter, three-necked creased flask is equipped with thermometer, copper coil condenser and stirrer (a one-inch Dispersator head and high speed motor) and heated with either a Glas-Col electric heating mantle or an oil bath. A nitrogen atmosphere is maintained in the flask, and one quart of a 50% sodium dispersion can be prepared in about one hour.

A convenient pilot-plant unit consists of a 15-gallon jacketed kettle fitted with a 3-inch Dispersator head driven by a 3400-rpm., 1½-hp. motor. The kettle is heated by oil and is designed to handle a charge of 20 to 50 pounds of sodium as a 50% dispersion. Operation is the same as in the smaller laboratory unit. Larger units can be readily designed using 4- and 6-inch Dispersator heads.

For other up-to-date information on equipment, preparation and application of sodium dispersions, or for data on high surface sodium, write to the Editor, U.S.I. Chemical News.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U. S. I.

A new self-emulsifying, self-scouring solvent for cleaning paint brushes and de-greasing all types of equipment is claimed to have no flash point, to be non-caustic, non-acidic, and non-toxic, and to be easily removed with water. (No. 960)

To identify pipe systems permanently and easily, rolled printed labels of rigid vinyl plastic are available which can be spread by hand, allowed to spring closed around the pipe. Labels are said to have a long life and to fit all pipe sizes up to 30 inches in diameter. (No. 961)

Hydrofluoric acid can be replaced in many metal etching, pickling, and cleaning operations, it is claimed, with a new crystalline powder containing soluble fluorides, penetrants, and activating agents. (No. 962)

For strong, heat resistant bonds between paper, leather, fabric, wood, metal, and many other surfaces, a new emulsion adhesive is being marketed which is fast setting and cures without heat, according to the manufacturer. (No. 963)

A new silicone water repellent treatment for leather reportedly does not affect breathing characteristics of the leather, improves low temperature flexibility, and increases resistance to oils, greases, and fungus. (No. 964)

A fluorinated resin-base coating, resistant to fuming, concentrated, or dilute mineral acids and other severe oxidizing agents, does not have to be baked or fused, can be brushed, sprayed, or dipped to protect tanks, equipment, and structural steel, the manufacturer says. (No. 965)

Industrial papers made of fine glass fibers can be used for filtering hot, corrosive gases and liquids, as base sheets for electrical laminates, and as gasketing materials for specialty applications, it is reported. (No. 966)

New stabilizers for vinyl resins are reported to be non-toxic, non-inflammable, non-irritating to the skin, and to be especially suitable for use with alkylated aromatic plasticizers. (No. 967)

Greater over-all protection from fire is claimed for a new fire detection cable which sets off an alarm immediately when touched at any point with a flame. Cable does not decompose, re-alarms itself, and needs no electronic amplification. (No. 968)

Light-weight, self-supporting tanks, resistant to most mineral acids, alkalis, inorganic acids, and many organic compounds can now be built to specification from unplasticized polyvinyl chloride. Tanks are welded and said to be structurally strong. (No. 969)

PRODUCTS OF U.S.I.

ALCOHOLS

Amyl Alcohol (Isoamyl Alcohol)
Butanol (Normal-Butyl Alcohol)
Fusel Oil—Refined
Propanol (Normal-Propyl Alcohol)

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Diamyl Phthalate
Dibutyl Phthalate
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OTHER ESTERS

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LABOR

New Labor Laws: How the unending struggle is shaping up this year over legislation governing labor-industry relations can be detected in developments this week in Alabama and Kentucky.

Most chemical plants in Alabama won't be affected immediately by that state's new "right to work" law because it doesn't apply to contracts now in force. But as present labor contracts expire, unions will lose some privileges—also, some members, probably; and some bargaining agencies, possibly.

The new law prohibits the union shop (which is permitted elsewhere under Taft-Hartley), bans the check-off of union dues (meaning that workers who want to stay in their unions must pay the dues personally), and protects workers against loss of jobs because of membership or nonmembership in a union.

It appears that the state-wide strike threatened by the CIO as a protest against the law won't materialize, but Alabama unions may retaliate by refusing to put no-strike guarantees in any new contracts.

In Kentucky, one segment of labor is on the offensive on the legislative front. CIO's Political Action Committee wants the state's common carrier act amended so that union truck drivers won't be required to cross picket lines at struck plants. Such a move could have considerable effect on chemical firms; a struck plant would be tied up tight, and a plant dependent on materials from a struck plant might suddenly have to shut down.

Cordiality Contrast: It seems there's a big difference on either side of the border in companies' attitude toward a left-wing union.

In Chicago, production of chemical and other scientific apparatus has been halted by a strike of the International Union of Mine, Mill & Smelter Workers (Ind.), and that union is objecting furiously to what it calls the "red-baiting" actions of the struck company, Precision Scientific. That firm has urged the National Labor Relations Board to withdraw certification, has contended that it's contrary to public policy and the Smith Act for a company to deal with a union considered to be communistic, and now has gone to court asking an injunction against Mine-Mill and \$1 million in damages.

But in Canada, there's been a complaint that atomic energy companies have "coddled" this union, which was expelled from both CIO and Canadian

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Congress of Labor as being communist-dominated. An organizer for the United Steelworkers (CIO) reports that at one uranium mine and refinery, he was denied admission despite the fact that a Mine-Mill man was already busily engaged on the premises; and that at another uranium mine, a Mine-Mill organizer was cleared for security and given a place in the company-owned bunkhouse and a regular seat at the dinner table.

Seven-Cent Gains: Once again, the latest chemical labor contracts show wage increases averaging around 7¢/hour. Examples:

- United Carbon has granted an 8¢ rise to employees at Ivanhoe, La., according to an official of International Chemical Workers Union (AFL).

- Diamond Alkali's new contract with District 50, United Mine Workers, at Fairport Harbor, O., includes freezing the 10¢ bonus into basic wage rates and an additional 5¢ general increase.

- Two locals of United Gas, Coke & Chemical Workers (CIO) bargained together for 6¢ wage increases from two paint makers, Sherwin-Williams at Chicago and Acme Quality Paints at Detroit, the latter an S-W subsidiary.

- Two branches of American Cyanamid, Calco Chemical Div. and Plastics Div., are raising wages by 3½¢ to 9¢/hour for ICWU members at Bound Brook, N.J.

- Office workers of Jefferson Chemical at Port Neches, Tex., have accepted company terms, but the amount of wage increase was not announced. The employees, members of Oil Workers International Union (CIO), had threatened to strike, claiming that their old pay rates were not equal to those at similar plants in the area.

- Reilly Tar & Chemical is handling all employees at Fairmont, W. Va., a 12½¢ package increase, according to UMW District 50.

- At Trenton, Mich., Monsanto employees represented by Gas-Coke will get a general wage increase of 8¢ retroactive to Aug. 10, and an additional 5¢ boost next Aug. 10.

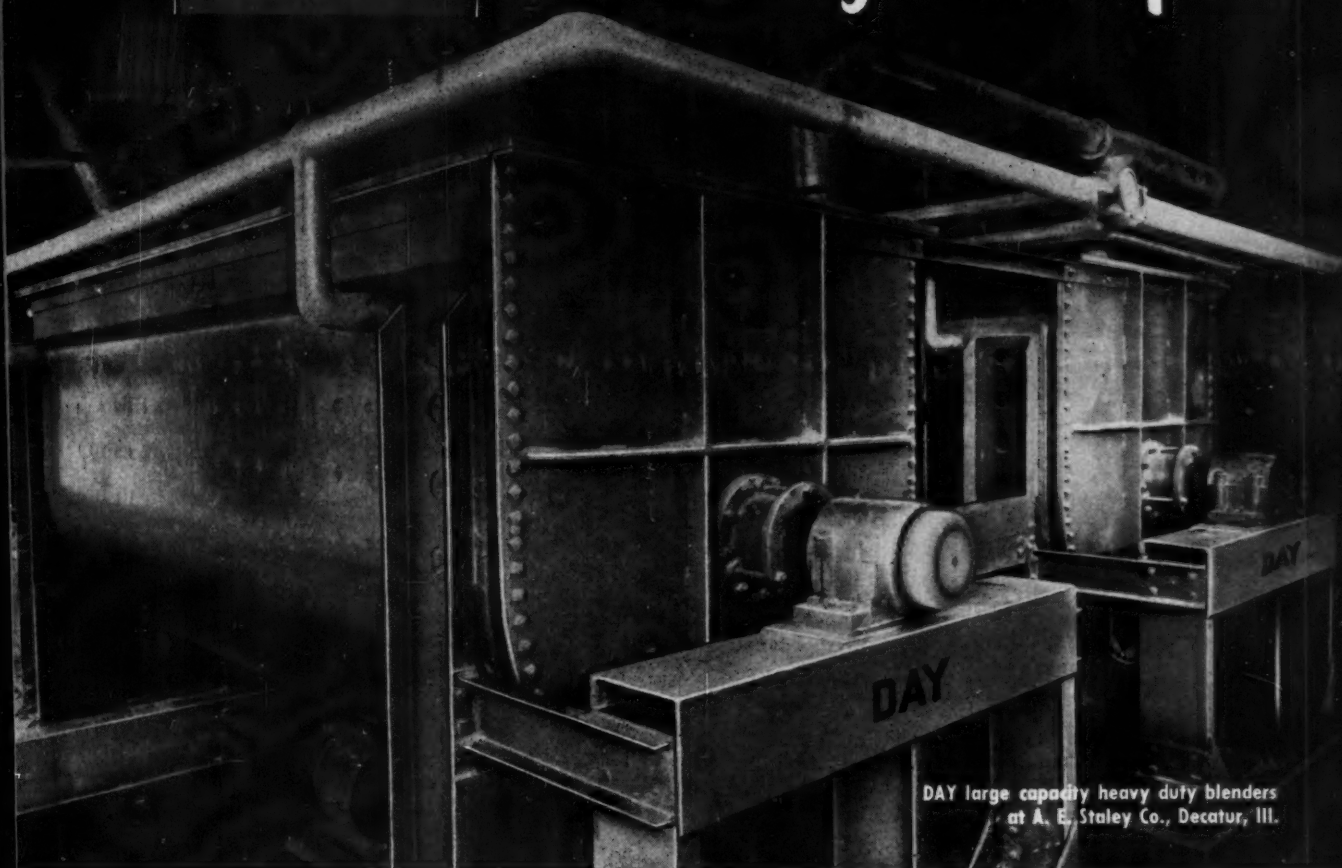
- Wage rates will be hoisted by 10¢/hour for the remaining year of the two-year pact between National Carbon and the International Union of Operating Engineers (AFL) at Columbia, Tenn.

- Hercules Powder's new agreement with UMW District 50 at Hopewell, Va., provides for a 4% general increase plus a 6¢ increment to all basic hourly rates above \$2.

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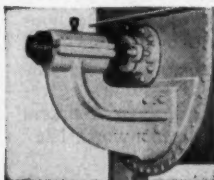


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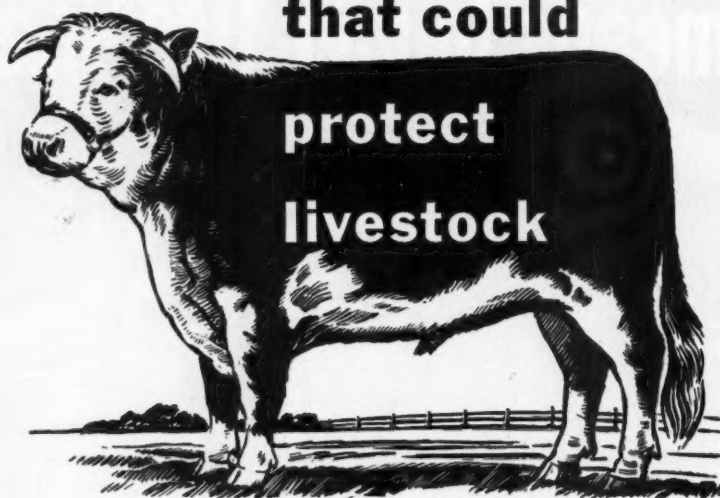
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dustry employees, represented by American Flint Glass Workers Union (AFL), are scheduled to receive wage increases of from 5 to 7½¢/hour.

- Dow Chemical and District 50, UMW, have signed a contract for a 10¢ wage hike at Ledyard, Conn.

Industry Sore Spots: There was tension this week at two chemical plants that have been hit by work stoppages:

- At Bridgeville, Pa., near Pittsburgh, sheriff's deputies were patrolling the strike-bound plastics plant of American Cyanamid to enforce a temporary injunction barring pickets from massing at the gates and interfering with company officials entering or leaving the plant. Negotiations have been reopened with federal mediators in attendance, but it appeared that it wouldn't be easy to settle the wage dispute that has kept the 600 members of UMW District 50 out on strike for five months. A union officer has been booked for assault in connection with alleged stoning of two company-hired trucks.

- National Aniline Div., Allied Chemical & Dye, says that its plant at Buffalo, N.Y., is operating at its "regular" rate" despite the strike that began there Sept. 1. About 200 employees who are represented by United Brotherhood of Carpenters & Joiners (AFL) are striking for higher wages, but most of the other approximately 1,800 employees—represented by Local 12330, United Mine Workers—have stayed on the job. The UMW local has suspended its president, recording secretary and a director for refusing to cross the AFL picket lines. A UMW official explained that it's contrary to UMW policy to support a "competitive union."

News on Neighbors: In allied industries as in chemical manufacturing, the wage trend is definitely upward.

- Pulp and paper mill wages are said to have reached the highest point in that industry's history with signing of a new contract covering 18,000 workers in 38 Pacific Coast plants. The 2½% increase brings base rates to \$1.76½/hour for men and \$1.47½ for women.

- By majority vote, the more than 3,000 employees at Aluminum Co. of Canada's big Arvida plant in north-eastern Quebec have accepted a company offer to raise wages by 17¢ for production workers and 22¢/hour for tradesmen. Rates will range from \$1.42 to \$2/hour.

- Goodrich and Firestone's agreements with United Rubber Workers (CIO) call for new benefits worth 12¢/hour.

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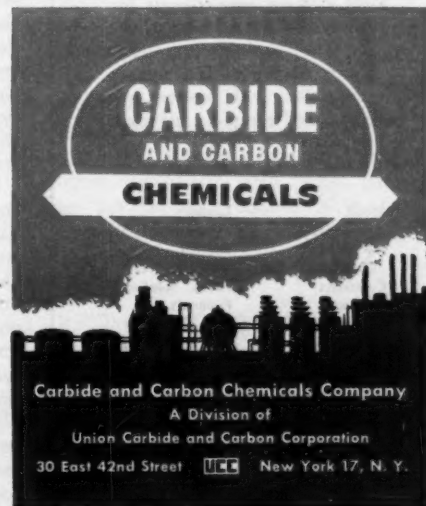
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BUSINESS & INDUSTRY.

Water for the Future

The need for water—long considered by chemical executives to be in the province of their engineering and plant-location specialists—is graduating into a top-level worry.

This shift will be highlighted by discussions in Washington, come December, when the Ford Foundation-financed Resources for the Future, Inc., spotlights water resources as part of its Mid-Century Conference on utilization of all our resources. And while the conference is privately sponsored, there's no question that any recommendations it makes will strongly influence future federal government policy on water resources. President Eisenhower has told RFTF's board chairman Horace Albright (who is also president of the U.S. Potash Co.) that the group's aims have his wholehearted endorsement.

Paternalists Bypassed: Since Albright has publicly acclaimed the work of President Truman's Materials Policy Commission (the Paley Commission), many observers had frankly expected that the resources conference was little more than a means to propagandize the Paley findings. While perhaps such an accusation might have had some truth in it some months ago, there seems little chance now that this is the case. There is hardly a trace of New Deal paternalism among the members of the steering committee that met last week to set up guide posts on water resources problems.

Gilbert White, president of Haverford College, heads the nine-man committee, and Abel Wolman, professor of sanitary engineering at Johns Hopkins University, is cochairman.

Other members of the steering committee are equally far from being classed as bedfellows of New Deal-Fair Deal philosophy. One of the engineer members is Wesley W. Horner, past president of the American Society of Civil Engineers and senior partner in the St. Louis consulting firm of Horner & Shiffrin.

Pollution Experts Picked: Another engineer on the steering group is Samuel B. Morris, chief engineer and general manager of the Los Angeles Department of Water and Power. Still another, with a prime interest in pollution control, is Maj. Gen. Warren F. Hannum, chairman of the California State Water Pollution Control Board.

Others on the committee include a specialist in reclamation and water use law, a wildlife representative, an economist, and a publisher-conserva-

tionist. Jean S. Breitenstein, Denver lawyer who frequently acts as counsel to the state of Colorado in reclamation and water use matters, is also a member of the Natural Resources Committee of the U.S. Chamber of Commerce.

Spokesman for sportsmen and wildlife conservationists is Claude E. Kelley of Atmore, Ala., president and chairman of the board of the National Wildlife Federation. The economist is J. M. Clark of Westport, Conn., professor of economics at Columbia University. Clark once served as a consultant to the wartime National Resources Planning Board and also to the National Recovery Administration of depression days.



U. S. POTASH'S ALBRIGHT: For resource group, no 'New Deal paternalism.'

Cabinet Connection: From Salem, Ore., home town of Interior Secretary Douglas McKay, comes the ninth member of the committee, Charles A. Sprague, newspaper publisher and editor. Like McKay, Sprague is a former governor of Oregon. Like him, too, Sprague also has been active in civic and conservation movements in the Pacific Northwest. Some people are already referring to Sprague as McKay's spokesman on the committee.

Billed as a citizens' forum on natural resources, the Mid-Century Conference is making every effort to keep its skirts clean of any implication that it will endorse or propose specific programs. Far from it, says R. G. Gustavson, president of Resources for the Future, Inc., which has \$150,000 of Ford Foundation money to finance the show. Gustavson draws a rather fine



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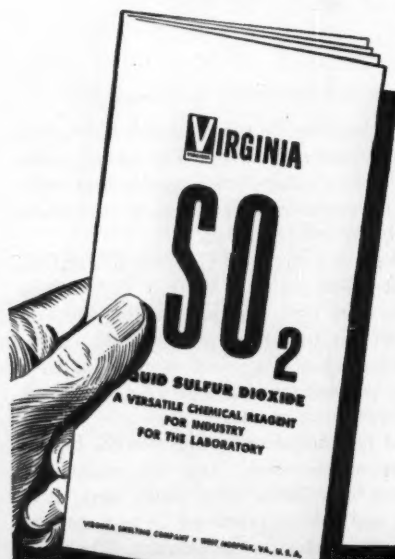
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line, explaining that the purpose of the December conference instead is to lay the groundwork for adoption by others of policies and programs that will be best for the nation now and for later generations.

Water Demand Soars: Specific problems to be discussed by the group include the total demand for water, with an emphasis on industrial needs; the parts that private as well as state and federal groups must play in future development; a determination of who should pay for development.

The growing demands for industrial water, of course, are of prime chemical interest. Demands increased 800% between 1900 and 1950, and current projections show an over-all industrial water demand of 200 billion gal./day in 1975.

With the possibilities of such an increase come other problems, blame for one of which—pollution—has long been laid, in large part, to chemical process industries. In outlining the subjects to be covered at the coming meeting, RFTF administrators made this comment: "Increasing production of synthetic materials and the growth of chemical industries, particularly, make pollution abatement a crucial factor in the location, relocation, and growth of industries."

Industry Tax Threat: Even without regard to how pollution abatement may increase future supplies of water for industry, such a statement points up the need for better public relations efforts whenever industry does find solutions to pollution problems.

The Paley Commission, in considering the subject, felt that if present water pollution controls were not adequate, a federal tax might be imposed on industrial operations that pollute navigable waters and interstate streams, thus giving industry a dollar-and-cents incentive to undertake antipollution measures.

That such a tax has been considered should in itself increase management consideration of pollution measures. And a good place for presentation of positive suggestions for abatement measures would be the coming water resources conference.

Power Postponement

Chemical companies whose expansion plans are based on expectations of availability of large amounts of low-cost hydroelectric power in the Pacific Northwest by 1957 will have to reconsider, it appears this week.

In order to keep construction and installation work at McNary and Chief Joseph dams on schedule under the GOP economy budget, the U. S.

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Palmitic C16	20.0%	20.0%	20.0%	20.0%	20.0%
Stearic C18	60.0%	70.0%	70.0%	70.0%	85.0%
Oleic C18	14.0%	4.0%	4.0%	3.0%	3.0%
FFA	99 Min.	99 Min.	99-103	99-103	99-103
Titre °C	54-56	58	56-57	58 Min.	60-64
Iodine Val.	15 Max.	6 Max.	6 Max.	4 Max.	3 Max.
Acid Val.	196 Min.	196 Min.	196-204	196-204	196-204
Sap. Val.	196 Min.	196 Min.	196-204	196-204	196-204
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Army's Corps of Engineers now proposes to hold up work on The Dalles Dam, a third multipurpose structure in the Columbia River basin.

This will mean, according to Executive Vice-Pres. Frank M. Warren of Portland General Electric, that anticipated surplus federal hydro power for distribution through private utilities such as his would be cut from 514 megawatts to 140 in 1957-58; from 715 to 305 in 1958-59; and from 698 to 75 megawatts in 1959-60. First in line for power produced at these dams will be preferred public utility and industrial customers.

Bonneville Power Administration estimates the proposed delay on The Dalles Dam will trim the prime energy supply by 150,000 kw. in 1957-58, 328,000 kw. in 1958-59, and 81,000 kw. in 1959-60, under minimum water conditions. That amount of energy, Bonneville comments, would produce \$100 millions' worth of aluminum ingots.

Policing a River

Chemical and other industrial plants along the 981-mile Ohio River will find themselves in the spotlight during the next phase of the purification program of the Ohio River Valley Water Sanitation Commission.

This eight-state agency, having nearly completed its hearings on requirements for treatment of municipal sewage in its valley, now plans to focus its attention on control of industrial waste.

And the chemical industry is supplying the man to handle this job. The commission has hired William G. Hamlin, sanitary engineer and specialist in industrial waste control engineering, to expedite the establishment of measures for reducing pollution from factories. For the past seven years, Hamlin has been associated with Procter & Gamble, developing waste disposal plans for various P&G plants—particularly those at Ivorydale, O.; Foley, Fla.; and Sacramento, Calif.

Pigskin Pay-off

Dow Chemical Co., cognizant of the popular appeal of the local high school football heroes, will sponsor broadcasts in the Freeport, Tex., area this fall.

Each of the ten games on the Exporters' 1953 schedule is due for a morning-after recount over the Freeport radio network. Using a play-by-play tape recording made during the game, Dow promises to schedule its programs each Saturday morning, expects to receive community acclamation of its venture.

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Pollution control is a cinch to sell as a generality, hard to merchandise when the deal involves dollars. And the job isn't made any easier by the fact that watersheds ignore state boundaries. One state's offal becomes the next state's drink.

Interstate river commissions in the last decade have begun to find a way of surmounting that last hurdle. Created by compact with the consent of Congress, these multi-state advisory commissions have a persuasive power far beyond their limited authority to study basin conditions, establish standards of water quality, publicize their findings, and recommend action to member states. Their extra punch comes largely from pulling together into a friendly group—full of mutual understanding—all the water control, health, and private industry people concerned with the waters of an entire river basin.

Chemical Sales Loom: Chemical companies have one of the biggest stakes in these commissions. What the commissions recommend—with the advice of their technical and industrial committees on which the chemical representatives sit—can hit the chemical industry four ways.

All those ways have materialized in actual practice during the short lives of several interstate groups. One such is the Interstate Commission on the Potomac River Basin. What processing industries learned from the commission—or were pushed into doing through commission—has produced these two variant effects:

- Changed processing methods to abate objectionable wastes and thus created by-products that are profitable to the manufacturer.
- Persuaded plants to spend money for treatment works that improve the quality of the effluent, without direct money return to the owners.

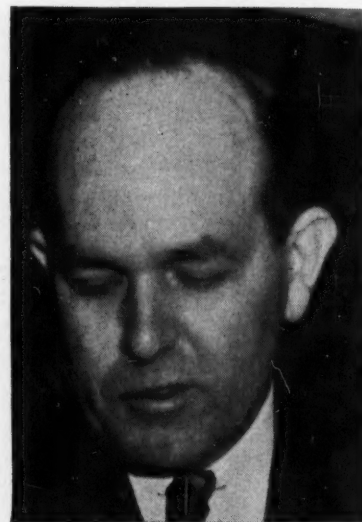
In other ways, the commission's work has generally benefited process industries in the basin by improving water quality for manufacturing plants along its streams. And finally, by advocating and developing treatment methods that employ chemical materials, the Potomac Basin group has directly enlarged the market for these products.

Market for Inhibitor: Its latest accomplishment, now well along toward fruition, runs directly to new market possibilities. And the new market comes from commission research on a baffling problem: What to do about acid wastes that flow in uncontrolled profusion from coal mines?

Director Edwin R. Cotton told the Interstate Commission on the Potomac River Basin at its meeting in Washington a couple of weeks ago that commission-sponsored research had just about cracked one of the toughest chemical pollution problems along the chemically rich basin: The formation of acid wastes in active coal mines which drain into the Potomac. Difficult, but not insuperable, problems remain in applying the newly found treatment to abandoned mines.

Already, field tests under way in an unused mine near Fairmont, W. Va., have confirmed laboratory results at Johns Hopkins University, where the basic research for the commission was done (*CW Newsletter*, Sept. 19).

Funds Are Low: The results achieved in the short time since research work began in June, 1952, appear phenomenal. But Cotton cau-



POTOMAC BASIN'S COTTON: From pollution control, a new chemical market.

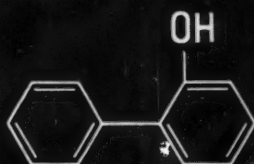
tioned his audience at the commission's twelfth annual meeting that tough problems still to be solved will take two to three years to work out.

Pilot tests and additional basic research can go on only if the commission finds new sources of financial support, Cotton made clear. Field work alone will cost \$40,000 for the fiscal year ending next June 30, he said; the commission's total income runs much less than that. Cotton has talked to the states that are represented on the commission, to coal companies and to chemical manufacturers who might take a profit from sale of treatment materials. But no-

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Chemical Name.....*o*-Phenylphenol
Molecular Weight.....170.2
Description.....Small, white, free-flowing flakes
with a slight bland odor and taste.
Boiling Point at 760 mm. Hg.....286.0°C.
Freezing Point.....57.2°C.
Specific Gravity 1.217 at 25/25°C., 1.213 at 25/4°C.
Flash Point.....255°F.
Fire Point.....300°F.

Solubility (approximate) at 25°C.	(Grams per 100 Grams of Solvent)
Acetone	670
Dowanol * 33B	412
Dowanol * 50B	381
Dowanol * 62B	304
Dowanol * 93B2	382
Ethyl Alcohol (Formula 30)	590
Ethylene Glycol	234
Isopropyl Alcohol	587
Methanol	975
Neats Foot Oil	22
Olive Oil	50
Petrolatum (White)	8 at 50°C.
Pine Oil	257
Polyglycol P400	176
Polyglycol P750	149
Propylene Glycol	316
Stoddard Solvent	12
Water	Less than 0.1

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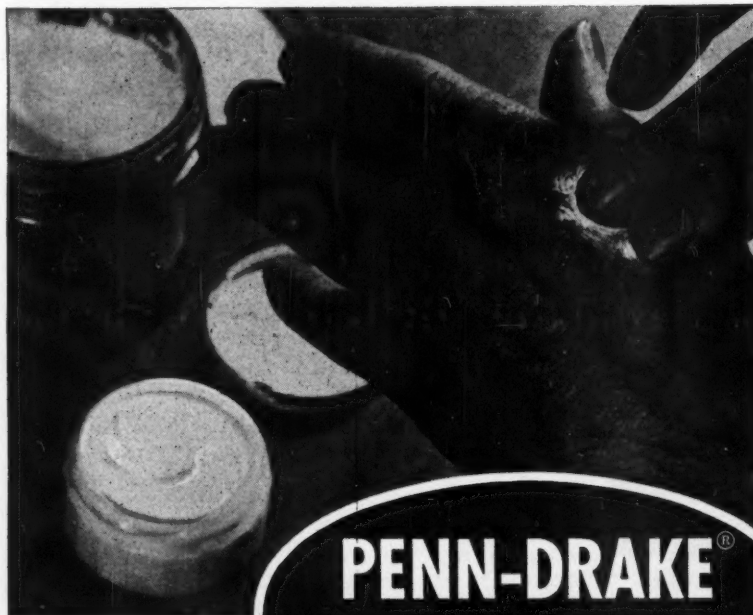
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Regular Grades	Saybolt Melting Point, °F.	Saybolt @ 210°F. Viscosity	2" Cell Color	A.S.T.M. Penetra- tion
Snow White, U.S.P.	119/123	63/67	1.5/2Y	175/220
Lily White, U.S.P.	117/121	63/67	8Y	175/220
Cream White, U.S.P.	117/121	65/70	24Y 1R	175/220
Blonde, U.S.P.	117/121	65/70	35Y 5R	175/220
Extra Amber, U.S.P.	116/120	67/72	35Y 6.5R	175/220
Amber, U.S.P.	116/120	67/72	35Y 10.5R	175/220
Red Veterinary	116/120	70/75	35Y 20/30R	175/220
Dark Green	125/135	100/105	Dark Green	110/150

Special Grades

Super White, U.S.P.	119/123	63/67	.5Y	175/220
Anomalous White, U.S.P.	125/135	80/85	1.5/2Y	110/150
Pennasoline White, U.S.P. (soft)	110/115	53/56	2Y	220/250
Pennasoline Yellow, U.S.P. (soft)	110/115	55/60	35Y 6R	220/250



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body yet has offered to put up any money.

Original funds for the project came as a grant from the U.S. Public Health Service, later supplemented by a second grant. Since July 1, however, the commission has financed the work entirely out of its own pocket. Floyd W. McCollum, who carried out the research assignment at Johns Hopkins and who now directs the field experiments, has become a commission employee.

If continued field tests bear out the favorable results so far obtained, surface treatment would seem to be the answer for active underground and strip mines. But it offers no panacea for polluted streams in the older coal producing areas. Flooded mines can be treated by applying the proper chemicals in sufficiently strong solution, and there are four or five possible ways of treating other abandoned mine workings, Cotton said.

A string was attached to the first PHS grant to the commission requiring it to discuss with the Surgeon General (head of PHS) any patentable idea that might come out of the research. The project did, of course, develop a valuable and patentable process, and the Surgeon General assigned it to the commission, which has applied for a patent.

Lab Detective Job: All this research grew out of an original research objective that sought only to learn what chemical reactions occur in the formation of acid mine wastes. Johns Hopkins University undertook the job and assigned it to McCollum, working with the departments of chemistry, chemical engineering and sanitary engineering. Dr. Walter A. Patrick, professor of chemistry, took a special interest in the project.

Working together, the two researchers developed a theory and tested it in the laboratory. By the first of this year, the Johns Hopkins people and the industrial committee of the interstate commission were satisfied that the theory was correct. Of primary significance, the laboratory-tested theory gave a clue to the reactions that formed the acids. Stop that reaction, and you eliminate the acids.

There is a whole series of chemicals that could stop this kind of reaction. McCollum is testing about 13 to determine which would be best for practical application.

Search for Insurance: As one dividend from the project, the researchers learned that acids form only on the surface of a coal vein and not throughout the stratum. Applying an inhibitor to the exposed surface stops the acid

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B & I

formation. But the application does not neutralize existing acids or acid-forming salts.

Field tests ran into an unexpected snag at the start. Owners of the mine asked that they be protected against any downstream damage to fish life, vegetation or property. The commission willingly assumed that responsibility but couldn't readily find an insurance company that had ever written such a policy—or wanted to write one. After some delay, an insurer was persuaded to accept a premium for the desired coverage.

Laboratory results at Johns Hopkins led to a broadening of the research project. The commission authorized some money to study further the mechanics of the acid-forming reactions. This investigation looks promising, but no one can say whether it will lead to a better or cheaper method of controlling mine acids.

Commission Powers Vary: The history of interstate pollution compacts dates back to August, 1935, when Congress gave approval to the Interstate Sanitation Commission. Members of this group were the states that comprise the metropolitan New York City area—New York, New Jersey, Connecticut. This group has authority to study pollution problems and make recommendations. In addition, however, it has the authority to order treatment of wastes.

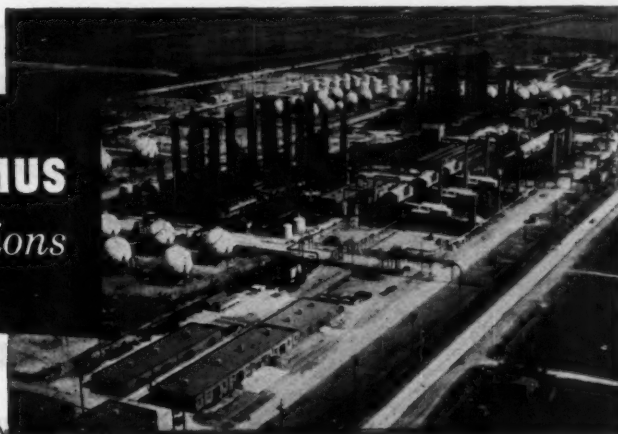
Other interstate commissions are tackling pollution problems from coast to coast. Some, such as the Interstate Commission on the Delaware River, are primarily interested in an assured supply of good drinking water; a few are concentrating on preventing pollution that would hurt the marine fisheries industry; and many are concerned with multiple problems—water for drinking, water for industry, water that isn't so muddy that it fills reservoirs with silt, and clear streams that appeal to fish, fishermen and tourists.

In many cases, the pollution is not amenable to chemical treatment, and in some of the remaining instances, the right chemical treatment process hasn't been found. But the partial success already attained with coal mine acids indicates that the time has come for chemical management to begin keeping close tab of pollution control pioneering as exemplified by the Potomac Basin agency.

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Cold Tablet Clash: Arguing that the tradename "7-Way" is an infringement on the title of its "4-Way Cold Tablets," Grove Laboratories of St. Louis,

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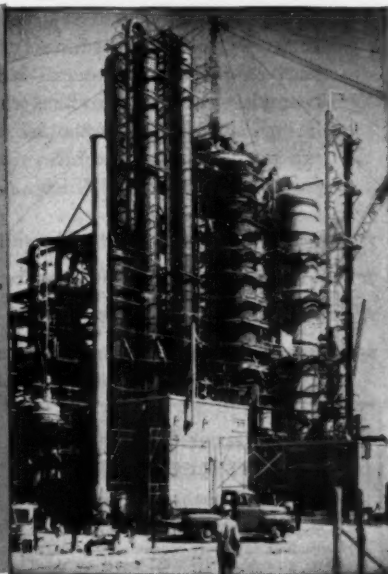
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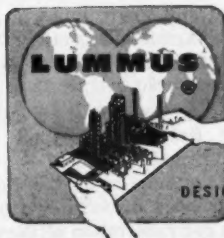
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Mo., is bringing suit against Approved Pharmaceutical Corp. of Syracuse, N.Y., in U.S. District Court at Utica, N.Y. The St. Louis firm asserts that the 7-Way name "deceives the public," is asking an injunction and judgment for all profits on 7-Way, plus court costs. Grove says it's sold \$20 millions' worth of 4-Way tablets, and that during the past five years sales have been at the rate of \$2 million/year. Advertising expenses were put at \$700,000/year.

Carbide Exonerated: In the hotly contested air pollution case in Criminal Court at Louisville, Ky., a jury of ten men and two women has cleared National Carbide of charges that its smokestack discharges were in violation of the state's year-old antipollution law.

While the county prosecutor assailed Carbide as "a wealthy industrial giant" that brought a "blight" to Louisville's West End, and Carbide's witnesses as men who had become university professors because they were "tired of working," the defense presented testimony that discharge from the stack was 99½% water vapor and one-half of 1% minute dust particles that would float for hundreds of miles. Water vapor, the defense contended, is not a contaminant, and the small amount of dust is not denser than the law permits.

After a trial that lasted through four days and one evening session, the jurors took 2½ hours to reach a unanimous decision. Their verdict, by prior agreement between Carbide and the county attorney, means that seven additional pollution charges against the company pending in another local court also will be dropped.

Sewage Plant Suit: In an attempt to collect the bill for construction of an ozone-type sewage treatment plant, Amozone of Oregon is suing the City of Kelso, Wash., for \$34,800. Luke L. Goodrich, trustee for Amozone, says his firm spent a total of \$37,000 on land and construction in 1946, and that the city has paid only \$2,200 to date. He adds that the city refused to take possession of the plant, although Kelso officials had not notified the company of any shortcomings in design or construction. The entire plant, including station and delivery facilities, has never been in operation.

Resin Suit Rebuff: Its second suit with a reworded complaint is still pending in the same court, but Rohm & Haas has been turned down on a request for reconsideration of the dis-



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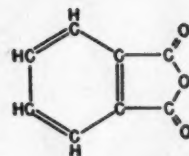
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missal of its earlier suit against Permutit in U.S. District Court, Wilmington, Del. (CW, Aug. 1). Rohm & Haas alleges that Permutit has been infringing a polystyrene anion-exchange resin patent issued to Rohm & Haas last Feb. 24. In ruling that the first suit (filed on the same day the patent was granted) was defective, District Judge Richard S. Rodney held that in a motion for summary judgment in an infringement suit, there must be a genuine issue as to an act of infringement happening prior to the filing of the action.

Fertilizer Hearing: Regulations on storage, distribution and sale of liquid fertilizers will be formulated at a public hearing before North Carolina's State Board of Agriculture on Oct. 19 in Raleigh, according to Commissioner L. Y. Ballentine. The hearing, originally scheduled for Sept. 14, was postponed in order to permit interested persons to attend a conference on liquid fertilizers in Chicago.

KEY CHANGES . . .

A. J. Whitford, to chairman of the board, Ansul Chemical, Marinette, Wis.

Willard Davis, to production vice-president, Sun Rubber, Barborton, O.

Leon Wheatley, to vice-president, R. M. Hollingshead Corp., Camden, N.J.

Luther Evans, to director of industrial relations, Dow Chemical, Midland.

Lawrence Stayner, to assistant manager, Julius Hyman Div., Shell Chemical, Denver.

Kenneth Morrison, to general manager, Philipp Brothers Chemicals' agricultural division.

William Ayscue, to assistant sales manager, Du Pont's rubber chemicals division.

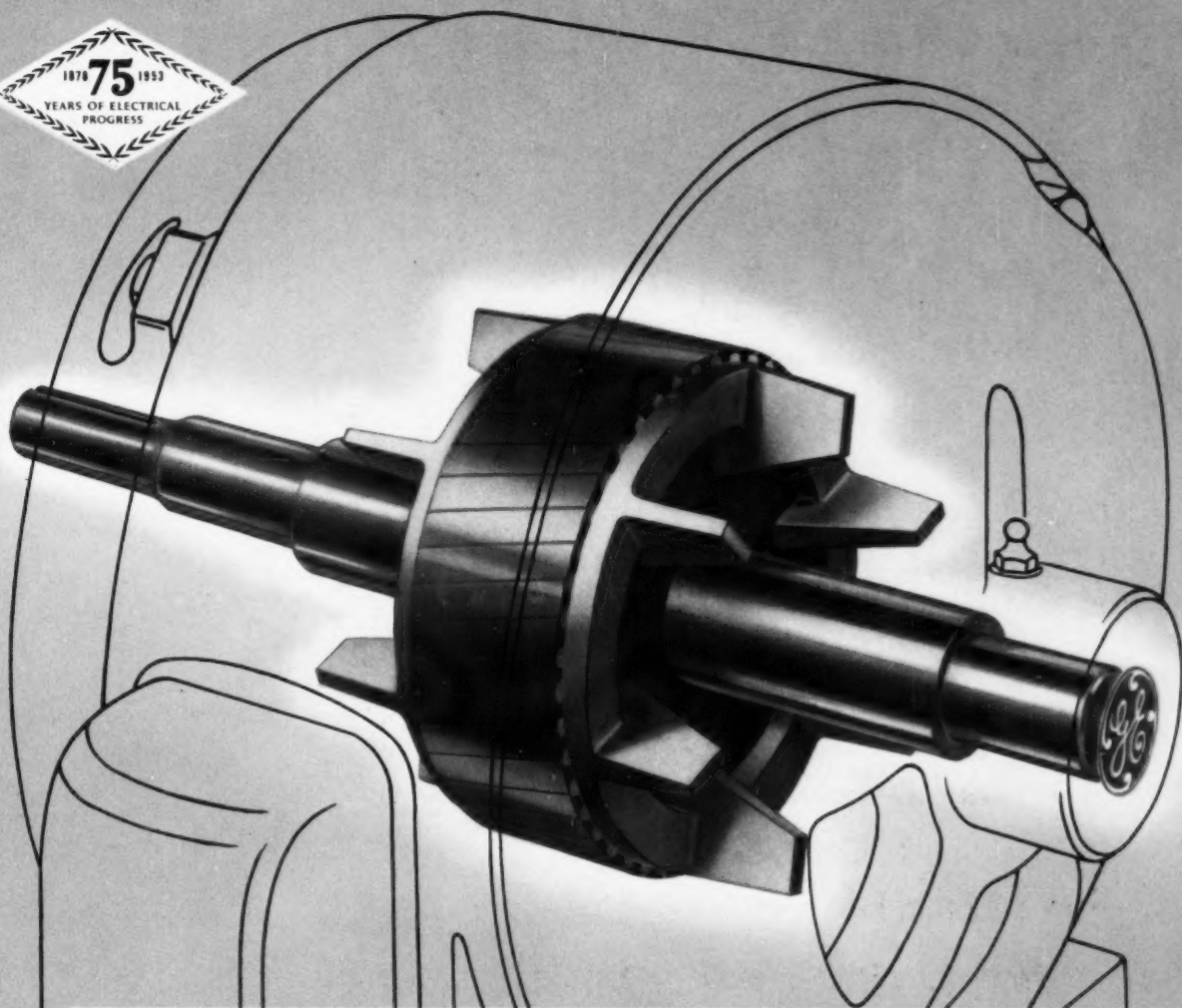
Aubrey Baber, to sales manager, Tecum Corp., Newark, O.

Carlton Dean, to manager, Marvin Paulus, to assistant manager, Monsanto's organic chemicals engineering sales department.

David Brown, to director of process development, Scientific Design Co., New York.

John Rust, to research director, Shulton, Inc., New York.

Roy Williams, to plant manager, American Cyanamid, Joliet, Ill.



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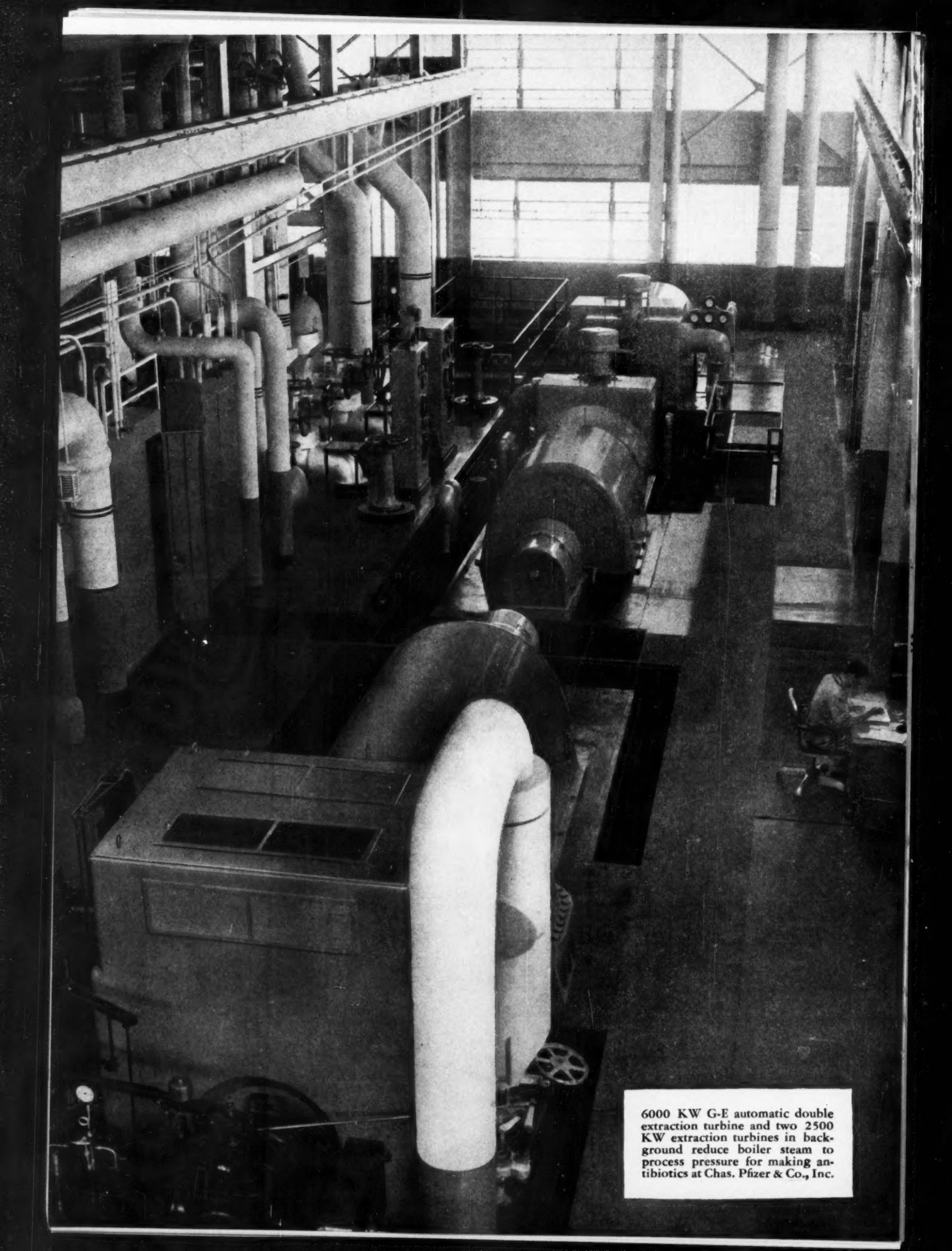
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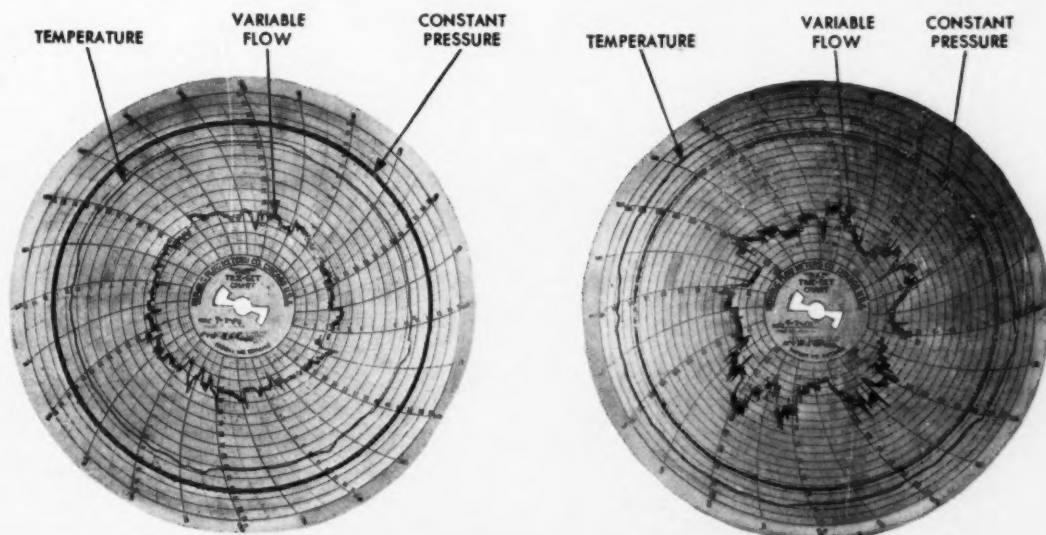
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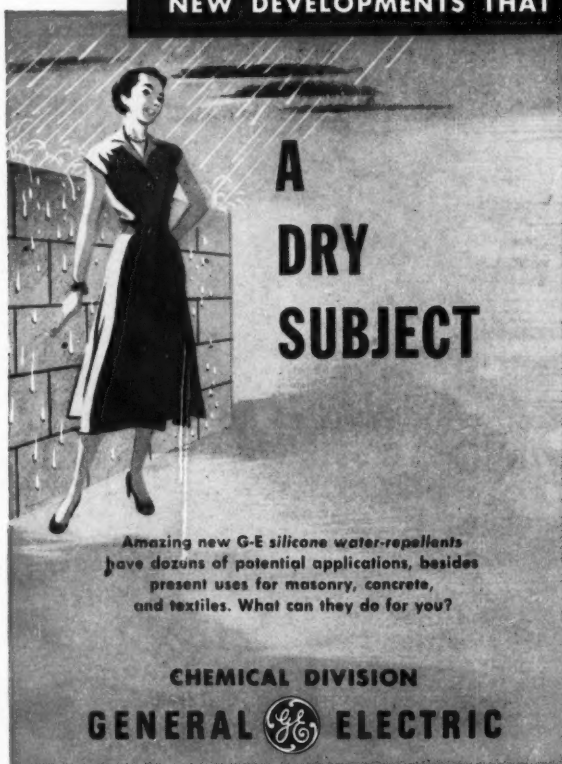


Even when the quantity of extracted steam varies over wide limits, extraction pressure remains constant, as indicated on the charts above. These charts show typical performance of a General Electric double automatic extraction turbine such as the one installed at Chas. Pfizer & Co., Inc.




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NPIR'S ZETTMEOYER AND MYERS: Configuration is the key.

New Dimension for Driers

Efficient new film driers are coming from Lehigh University research with metal-amine coordination complexes.

Here's what the new complexes can do, how they do it, and their prospects for commercial application.

With no help from Hollywood, a pair of Lehigh University researchers have found new meaning in 3d. Inorganic chemists won't need polarized glasses to recognize that quantum notation; but paint, varnish and printing ink chemists would do well to get acquainted with it. The reason is simple: 3d designates the electron energy level at which chelation, or complex formation, occurs; and chelation is the key to a significant new advance in film drier technology.

Director Albert Zettlemoyer and co-researcher Raymond Myers of Lehigh's National Printing Ink Research Institute (Bethlehem, Pa.) have discovered that the drying power of manganese and iron may be materially boosted by complexing the metals with a number of amines.

"In some cases," reports the pair, "manganese catalysis was improved to the point at which it was superior to cobalt catalysis." Iron, though not elevated to a comparable level of drying potency, was improved to a greater degree in proportion to its original activity. Cobalt, the most active drier, is unaffected by chelation with amines.

Launched more than two years ago,

the NPIR work has had the support of Advance Solvents and Chemical Corp. (New York) and Harshaw Chemical Co. (Cleveland, O.). Commercial implications, highlighted by an encouraging cost picture, are getting more than passing glances from a covey of interested firms.

Waiting for the Light: But a good deal more effort will be needed before the pepped-up driers get the green light from any company. So far results have been obtained chiefly from tests on unpigmented linseed oil. These data are fine where varnishes are concerned, but they don't tell much about the behavior of the new combinations in paints and inks. Preliminary experiments, however, indicate that pigmented products also benefit from the amine complexes. Their effect on tung, soybean and other oils also should come in for more study.

Several more tangible hurdles stand in the path of commercial application. Darkening, caused by the complexes, could be a problem. Short shelf life is sure to be one. The complexes lose their extra activity in a comparatively short period of time after addition to paints and inks. They cannot be put

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RESEARCH



into the can and stored indefinitely. Manganese-amine complexes, for example, lose their excess activity within a week after mixing. Inks, usually batched up prior to use, won't cause much trouble; paints, on the other hand, could be a real headache.

Nix on Cobalt: Several amines have been shown to take part in the formation of efficient drier complexes. Among them: *o*-phenanthroline; picolinic acid; *o*-dimethylaminomethyl-*p*-butylphenol; *o*-dimethylaminomethyl-*p*-octylphenol. Schiff bases, such as *N,N'*-disalicylenediamine and *N,N'*-*o*-phenylenediamine, seems to be the best of the batch. Of the drier metals investigated, only manganese and iron proved suitable.

Cobalt was impervious to amine enhancement. And that's an important clue to the mystery of why a drier-amine complex works faster than the drier alone. It all hinges on the 3d electronic configuration and the tying of drier efficiency to ease of reversible combination with oxygen.

To start with, drier metals in commercial form have their normal valences filled by bonding to naphthenic or octoic acids. But they retain the capacity for complex formation at the 3d level. Resistance of cobalt to improvement is explained by pointing out that cobalt's electronic configuration is optimum (among transition metals) for reversible combination with oxygen. Chelation with amines

cannot possibly give a better configuration. But an amine, by filling a 3d valence, does improve manganese, gives the resulting monoamine an electronic configuration identical to that of cobalt. This, combined with lower energy requirements for electron transfer, accounts for the cases in which manganese monoamine was superior to cobalt in drying activity.

Cobalt's indifference to betterment by chelation may fulfill the predictions of the theoreticians, but it could limit to some extent commercial utilization of chosen amines. Of necessity, their usefulness would be limited to cobalt-free vehicles. Of course, where metal complexes are intended as replacements for cobalt, this is no drawback.

Myers' and Zettlemoyer's research might pay dividends in the relatively near future. More important, it could be of prime long-range significance as a start in the direction of a fertile new drier technology.

Bitter Spotter: Bitterweed, which costs Southern dairymen about \$7 million/year in spoiled milk, may soon be little more than a minor bucolic headache. The hopeful prognosis is the result of progress in antibitterweed research at North Carolina Agricultural and Technical College (Greensboro). Piloted by Booker T. White, head of the college's chemistry department, the work is aimed at the

Better Safe Than Sorry

PANELISTS at University of California's (Berkeley) recent Seventh Annual Conference on the Administration of Research hear two sides of the most controversial issue of the meeting: security restrictions on government-sponsored research. Strong body of opinion was voiced by UCLA chancellor, Raymond Allen (*seated, right*): much security restraint on dissemination of results is unnecessary, detrimental to progress. The government's attitude, summed up by Army Chemical Corps' Brig. Gen. William Creasy, (*standing*): the penalty for overclassification, admittedly a serious problem, is far less severe than that for underclassification. Attended by government, industry and university research administrators, the conference dealt with such themes as effective utilization of research results, responsibility for financing research, training scientists.

development of a quantitative color test to indicate the presence of bitter substances in milk. Using radioactive isotopes, White has traced the weed's bitter agent through the cow's metabolism, isolated it in the milk. If perfected, the color test would be of prime practical significance as a preventive; one bitter gallon of milk can ruin the taste of 100,000 untainted gallons.

Belated Debut: U.S. Dept. of Agriculture has just released results of insecticide screening work carried out at Anaheim, Calif., in 1951. USDA researchers tested 71 esters of propionic acid on six species of insects, found: 2,4-dinitro-6-biphenyl, pentabromophenyl, and pentachlorophenyl propionates were effective (as 0.05% sprays) against the two-spotted spider mite; 2,4-dinitro-6-biphenyl and pentachlorophenyl propionates were effective (as 0.5% sprays) against the armyworm; *o*-cyclohexylphenyl and *p*-tert-butylphenyl propionates (as 0.5% sprays) scored against the large milkweed bug; and *p*-bromophenyl, *o*-chlorophenyl, *p*-chlorophenyl, and 2,4,5-trichlorophenyl propionates (as 0.5% dips) proved effective in controlling pea aphids.

As 10% dusts, these propionic esters were effective against one or more species: 2-biphenyl; pentachlorophenyl; 2,3,4,6-tetrachlorophenyl; 6-tert-butyl-*m*-tolyl; 2-bromo-4-

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tert-butylphenyl; *p*-cyclohexylphenyl; *m*-ethylphenyl; 2-naphthyl; *p*-nitrophenyl; and the dipropionates of 2,4'-dihydroxybenzophenone; 4,4'-dihydroxybenzophenone; and 1,5-naphthalenediol. In all cases, greater than 74% mortality was used as the criterion of effectiveness.

No Pain: Promising new local anesthetics have been uncovered in a Michigan State College probe of sulfur-containing organics. Low toxicity ω -(*N,N*-dialkylamino) alkyl 2-thenoate hydrochlorides proved comparable to procaine in pain-killing activity. The work is still in the experimental stage.

Antibiotic Angles: Preservation of prepackaged vegetables is the newest addition to a growing list of potential industrial applications for antibiotics. In experiments at Beltsville, Md., a Dept. of Agriculture plant pathologist successfully used streptomycin in low concentration to increase the shelf life of packaged spinach at room temperature. Results were achieved by treating the leafy vegetable before or after harvest. Commercialization hurdle: antibiotics in foods are now classed as adulterants.

Plastics and People: In the works at Dow Chemical Co. is a new plastics production laboratory. Function of the research addition is twofold: improvement of existing products and processes, development of new products and processes.

Also from Dow comes word of an innovation in the company's research personnel setup. Following the lead of a handful of firms in the chemical and petroleum industries, Dow has established a position of advanced standing for highly talented researchers of little administrative inclination. Titled "research specialist," the post—Dow explains—"gives concrete expression to the company's . . . principle that exceptional research ability is of equal importance with exceptional supervisory ability . . . Eligibility for the classification requires a notable record of achievement in research and devotion to . . . science as a profession." First holder of the new title: spectroscopist Ludo Frevel.

Cortisone Flurry: Cortisone news in generous measure comes this week from Upjohn Co. (Kalamazoo, Mich.), which reports that it is now producing Compound F (hydrocortisone) by essentially the same fermentation process used in the manufacture of cortisone. For the present, the com-

RESEARCH

pany will make Compound F available only as an ointment. In another facet of cortisone research, Upjohn chemists have developed methods of preparing progesterone and pregnenedione from readily available ergosterol. Both hormones are starting materials in Upjohn's microbiological method of producing cortisone.

Possibility: If American Cyanamid Co. moves into thermoplastics, it won't come as too much of a surprise. The company is now pilot-planting methylstyrene at Stamford, Conn., studying production and marketing aspects of larger-scale manufacture. The methylstyrene is made, says Cyanamid, "by a recently developed process" in which toluene is reacted with acetylene. According to stated plans, the acetylene would come from natural gas.

Dozen in the Chain

Despite the hundreds of additives that exist, the search continues for anticorrosive agents to do duty in petroleum products. National Aniline Div. (Allied Chemical & Dye Corp.) is putting its chips on a newcomer—the dodeceny member of its series of alkenyl succinic anhydrides.

Developed by Solvay during World War II, the succinic anhydride derivative was tagged from the start as anticorrosion agent for motor fuels and lubricants. The Navy got first crack at the substance, took most of the output for its marine diesels. Now the anhydride is commercially available from National Aniline's Buffalo, N.Y., pilot plant.

Produced by the reaction of dodecylene and maleic anhydride, the yellow liquid is a branched structure best represented by the designation, 3-(1-dodeceny) succinic anhydride. It's a mixture of isomers of dodeceny succinic anhydride, contains small amounts of higher and lower homologs.

The anhydride readily reacts with water at elevated temperatures to yield dibasic acids, with alkalis to give water-soluble salts. To fuels, lubricants and slushing compounds, it bestows an anticorrosive effect by its ability to form protective films on metal engine surfaces.

Added petroleum uses: as a direct additive to improve lubricant viscosity; in the preparation of shear-resistant greases; as an octane-rating booster for naphthenic diesel fuels. Petroleum applications, however, are not the full measure of the new product. National Aniline is now probing the merits of the chemical in several unrelated process applications.



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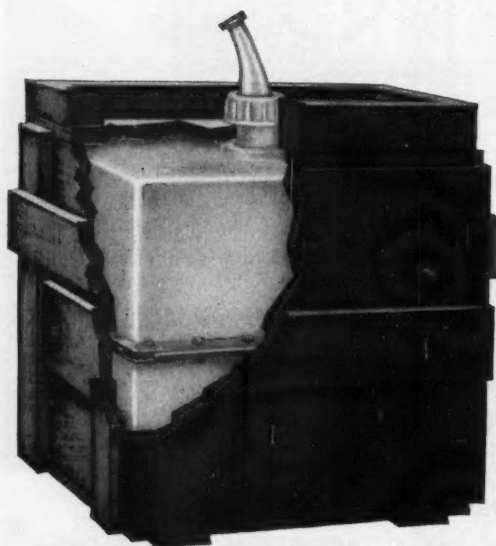
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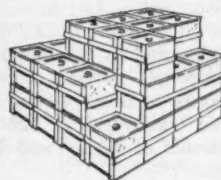
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HOWE SOUND COMPANY (A CORPORATION)

730 FIFTH AVENUE
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HAROLD H. SHARP
President

September 4, 1953

To the Stockholders of Howe Sound Company:

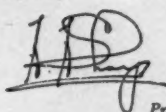
We have ~~received~~ although the amount of metal sold was approximately the same in the first six months of 1953 as in the last six months of 1952. This indicated decrease in gross revenue was far in excess of the reduction in net income shown in the report covering the first half year's earnings. The operating organizations at the various properties have, even in the face of increased labor and supply costs, made noteworthy reductions in operating expenses which, combined with lower direct, and income taxes, have made possible a financial outcome better than might have been expected.

Mechanical difficulties at the cobalt refinery at Garfield, Utah, which were mentioned in the last annual report, still persist. As we advised you in that report, it has been found difficult to adapt the equipment, specially designed for a new process, to meet the conditions of corrosion and abrasion which are inherent. While very considerable progress has been made since the first of the year, the operation of the plant has not yet proved satisfactory,

and frequent delays have prevented a continuity of production. To aid in the solution of the problems, the Battelle Memorial Institute has been engaged to make an on-the-job study of the plant operation and ~~equipment~~ ~~from the~~ ~~plants of~~ ~~the~~ ~~United States~~. The Institute, with headquarters in Columbus, Ohio, is one of the largest and best equipped research organizations in the country and, fortunately, has had considerable prior knowledge of the process used at the Garfield refinery. The Institute originally anticipated that by the end of August they would be able to give us their report and recommendations. Without in any way expressing any lack of confidence in the process, they now advise that the situation is a complex one and will require additional time for study. It is ~~now~~ ~~reported~~ ~~that~~ ~~we~~ ~~will~~ ~~receive~~ ~~their~~ ~~report~~ ~~and~~ ~~their~~ ~~recommendations~~ before the end of September, and it is possible that this report will not be forthcoming until some time in October.

The refinery is, and has been for the past several months, producing cobalt which is up to government specifications; but, due to recurring delays the volume of production is not yet on a commercial level. Pending receipt of the report from the Battelle Memorial Institute we are unable to forecast when the plant will be producing at full capacity. We wish to reiterate our previous statement, however, that we believe the chemistry of the process is sound and that current problems will eventually be solved.

Yours very truly,


President

SHARP TO STOCKHOLDERS: The chemistry is sound and there is . . .

No Cause for Concern

Things just haven't been going right for the Howe Sound Co.; in a letter that stockholders were receiving last week, Pres. Harold Sharp spelled out the firm's troubles in the falling metals market. He also focused attention on some difficulties encountered with the chemical metal-refining process being pioneered by Howe Sound at its Garfield (Utah) refinery—the process that was supposed to stand the metals world on its ears.

The reason for the comparatively poor showing on dividends* that Howe

* 12¢ a share for the second quarter of this year as opposed to 49¢ a share for the second quarter of '51.

Sound has been making is the fact that the bottom temporarily dropped out of the market for its metals.

Production for the most part has been on a par with last year's. The firm, in fact, turned out more copper and zinc in the first six months of this year than it did for the same period last year. Zinc output fell off, but only slightly. Meanwhile, however, the average price it was receiving for a pound of copper skidded from 36.376¢ to 30.249¢; of lead from 14.287¢ to 10.867¢; of zinc from 14.867¢ to 11¢.

Even so, says Sharp, the drop in

earnings was nowhere near what you'd expect from the drop in gross. He gives a well-deserved pat on the back to the operating division, which boosted the ratio of earnings/gross in the face of higher costs for labor and supplies.

Trouble Spots: But more significant for the entire process industry are the statements in Sharp's letter dealing with the Chemical Construction Co. process being put through its paces at Garfield. Difficulties have been encountered, as is normal in the start-up of any novel process, and he points out that the plant has been turning out cobalt that, up to government specifications. Still, it has as yet not been able to operate continuously. Nevertheless, he says, "We believe the chemistry of the process is sound and that current problems will eventually be solved."

At the same time, it seems apparent that—as novelist P. G. Wodehouse once observed in a similar situation—while Sharp may not be disgruntled with the project, he's not exactly "grunted," either. He cites the difficulties of adapting equipment "to meet the conditions of corrosion and abrasion which are inherent." But there have been other troubles, too. An oxygen compressor was a source of woe at the very start. And delays of equipment pushed the timetable back at least six months.

The upshot of the matter is that Battelle Memorial Institute has been called in "to help solve the problems" through an on-the-job study. The field is right up Battelle's alley. It was cognizant of some of the earlier work done by Chemico in cooperation with Sherritt Gordon, and it has investigated the process as it applies to manganese.

Battelle was called in last June, was scheduled to complete the study by August. But the complexity of the job caused a postponement and Sharp says he doesn't expect to see a report before next month. Battelle's findings of course, are confidential, and the institute is committed to a no-comment attitude on the whole question. By last week, however, its study was complete and probably in the hands of Chemico. It's a good bet that the report echoes Chemico's optimism on the process.

Matter of Definition: And right now Chemico is brimming with optimism. It points out that the plant was completed last August. That was only six months behind schedule—no small accomplishment in view of the difficulty

PRODUCTION

in getting equipment. While the firm is not ready to go out on a limb with a specific date, it has no doubts that the wrinkles will be ironed out, that the plant will hit its full stride.

It adds that corrosion is not the problem it's made out to be, indicates that Sharp may have overstated the case somewhat. Any misunderstanding on that score is easy to understand, though, for Howe Sound, as a metals company, has not had any extensive experience with corrosion in a chemical plant. Chemico, of course, has a wide background in dealing with sulfuric acid, nitric acid and other hard-to-handle chemicals. Obviously, its definition of a corrosion problem would be a good deal more rigorous than Howe Sound's.

Difficulties in getting new plants up to designed capacity are not a new experience for the chemical industry, either. And even a casual glance at the material-of-construction requirements for the plant and the reactions of the process offer ample explanation of any delays at the Garfield refinery:

An ore concentrate containing about 20% cobalt is shipped from the firm's Blackbird mines to Garfield, where it goes through an acid leach. No sulfuric acid is required, however. Instead, the sulfides in the ore are oxidized to sulfates. Iron in the ore is converted to ferrous sulfate, which in turn is oxidized to ferric sulfate. Ferric hydroxide is precipitated from the aqueous solution and that, in effect, leaves hydrogen ions from the water and sulfate radicals from oxidation in solution as sulfuric acid. Then the solution is filtered to remove the gangue, and arsenic and copper are removed. Next, the solution is made ammoniacal, hydrogenated under pressure to reduce the nickel and cobalt. They precipitate as a mixture (about 95% cobalt, 5% nickel) but can be separated if desired.

Originally, the idea was to use oxygen for the oxidation. But to minimize the chances for failure, Chemical switched to air, although it thinks it may eventually return to oxygen. Autoclaves for the reaction are built of carbon steel clad with stainless, are lined with acid brick. All parts coming in contact with the hot acid leach solution are of ductile titanium. A silicone coating between the acid brick and the vessels serves as an insulator.

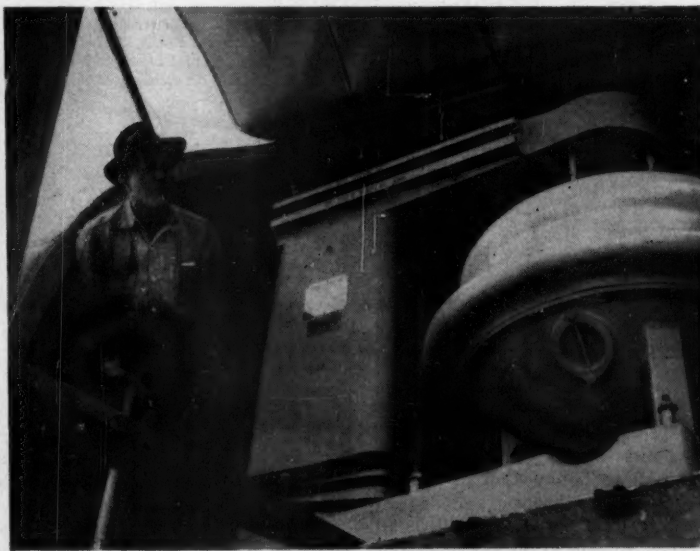
Timetable for Others: Similar processes are also scheduled for plants of Sherritt Gordon and National Lead (CW, May 17, '52). They too are slightly behind schedule, but Chemico feels there is no cause for concern.



Centrifuge Takes to Air

BILLED AS THE WORLD'S biggest nozzle-type centrifuge, this piece of equipment was recently loaded aboard a chartered C-46 cargo plane at the San Francisco International Airport and flown to Tampa, Fla. Priced at \$45,000, the centrifuge was built by Merco

Centrifugal Co. for International Minerals and Chemical's new Bonnie (Fla.) plant. In order to get it into the plane, the entire top portion of the centrifuge had to be removed. It will be used to separate solid fluorides from the plant stream.



Here's a rundown of the status of plants and studies:

- Sherritt Gordon is building a \$17-million nickel refinery at Edmonton, Alberta. The process is essentially the same except that it will employ an ammonia leach rather than an acid one. And whereas Howe Sound's principal product is cobalt (design capacity is

2,000 tons/year), Sherritt will produce nickel as its principal product (8,500 tons/year) along with lesser amounts of copper (1,000 tons/year) and cobalt (150 tons/year). It will also turn out 70,000 tons/year of ammonium sulfate as a by-product. Originally, the plant was scheduled for completion this fall. Chemico's

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guess now is early next year.

• National Lead is sinking \$5 million in a refinery in Fredericktown (Mo.). Like Howe Sound, it will employ an acid leach. Scheduled annual production is 700 tons of cobalt, 900 tons of nickel, 700 tons of copper. About 7,500 tons/year of ammonium sulfate will be produced. The original schedule called for completion around the middle of this year. It looks now as though it will come in at approximately the same time as Sherritt Gordon's.

• Chemetals Corp. has rights to the process as it applies to manganese and copper scrap. The firm was pushing a proposal of Ucoa, Inc. (Utah Construction and Associates) to build a \$30-million manganese plant using the process. Change in the administration in Washington, says Pres. William Hayden, has caused the idea to be temporarily shelved.

Meanwhile, however, Chemetals has authorized Whitaker Cable Corp. to use the process to recover copper from scrap in a Kansas City (Mo.) plant. The plant will turn out 7 tons of copper and about 3 tons of zinc daily as a start, figures to boost that eventually to 10 tons of copper.

That's small as copper plants go. But then that's the beauty of the thing, says Heyden. As he figures it, the important copper plants in this country have average capacities of about 35,000 tons/year. Using the Chemico process he says, it's economically sound to build small units, thus paring costs for hauling the copper to the market.

The Kansas City plant is slated for completion before the end of the year. And Heyden emphasizes that corrosion is absolutely no problem in the scrap recovery plants.

• Several other applications of the process are possible, too. Freeport Sulphur is investigating the possibility of applying the process for production of nickel from its Cuba reserves.

Road to Achievement: For the long run, most experts concede that there's no question about the soundness of the process. Battelle has already said that the Sherritt Gordon process is technically sound, and Ford, Bacon and Davis, Inc., has confirmed plant and operating costs for the Edmonton project.

When all the plants are completed and running full tilt, Chemico will be able to lay claim to a great engineering accomplishment. The headaches, heartaches and delays are milestones along the way. For that road, like the course of true love, never does run smooth.

EQUIPMENT

Tank Insulator: The Refractories Division of The Babcock & Wilcox Co. (New York City) has just come out with a new insulator for above-ground propane and butane storage tanks. Tagged the B&W K-20 Concrete Mix, it's lightweight insulating concrete made of a kaolin base and a hydraulic setting cement binder. It has been used in industrial furnaces subjected to temperatures as high as 2000 F.

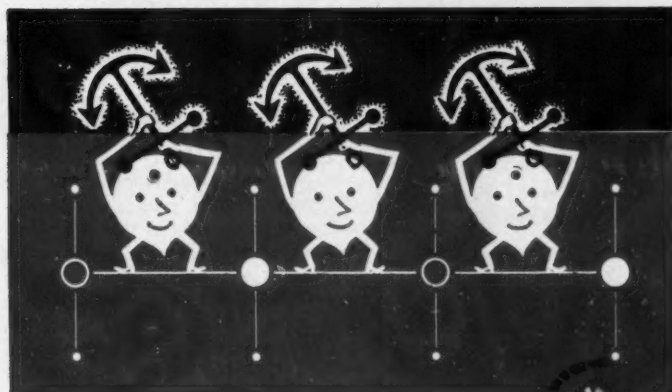
Its use in LPG storage tanks is a natural, says the firm. Here's how it reasons: When the tanks become overheated, some of the liquid vaporizes and builds up higher pressures. At the same time, the steel gets hotter. That, of course, weakens it and the whole tank can easily explode. The new insulator is applied with a cement gun to a thickness of 1½ in. on the outside of the tank already coated with corrosion-resistant paint.

• **Sign of the Times:** Those serving the expanding process industry must expand too. And the Pfandler Co. (Rochester, N.Y.) has done just that. Pres. Mercer Brugler reported last week. He said the shipping volume for its glassed steel and alloy equipment has increased 5-fold over the past 10 years. But that's only the beginning, says Brugler. By 1953, he sees the potential volume for its equipment for the dairy and chemical fields as being 12 times the 1943 figure.

• **Continuous Centrifugal:** The Tolhurst Centrifugals Division of American Machine and Metals, Inc. (East Moline, Ill.) is bringing out a new continuous centrifuge, a limited number of which are available for 90-day tests in the plants of companies interested in investigating applications. The machines can be used, says the manufacturer, for short runs on different products as well as for longer runs on a single product. This is made possible by self-cleaning feed chambers designed to minimize down-time when changing to a different product.

• **For Sulfate Digesters:** From Lukens Steel Co. (Coatesville, Pa.) comes word of a steel designed specially for sulfate digesters. Says Vice-Pres. J. Frederick Wiese in introducing it: "This steel is of the rimming type, similar to the rimming steel used in digester service some years ago. It has the advantages; however, of the combination of the desirable qualities of the old-type rimming steels with

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PRODUCTION

the characteristics necessary for easy fabrication of the heavy-gauge metals used in this service." Several big pulp plants are already using the steel, other units are currently in the fabrication stage.

Designer Aid: Also from Lukens comes a calculator aimed as an aid to designers, engineers and others interested in steel fabrication. It's a plastic slide rule that gives the size of the weld required for a given applied load and the weight of a given weld in pounds. It gives values for stresses ranging from 2,000 to 20,000 psi. and applied loads of from 9,000 to 450,000 lbs.

Mass Spectrometer: General Electric (Schenectady, N.Y.) last week brought out a new mass spectrometer designed to meet process instrumentation requirements in the gas, pharmaceutical and chemical fields. It incorporates a programming device to permit either automatic and repetitive continuous scanning of the spectrum or manual scanning or selection of peak (or peaks) for a given mass. It adds that, with minor modification, it can be adapted to the automatic monitoring of one or more peaks in sequence.

News on Moves: Reorganization and a new firm among equipment makers last week:

- As another step in its policy to simplify and strengthen its field organizations, Westinghouse Electric Corp. (Pittsburgh) reorganized its Northeastern Region to include five sales districts: Boston, Connecticut Valley, Newark, New York City and New York State.

- In Buffalo, N.Y., Process Filters, Inc., has been formed to conduct designing and engineering for the production of pressure leaf filters.

- The furnace division of R-S Products Corp. has been incorporated, will be known as R-S Furnace Corp., a subsidiary of Harding Co., Inc. (York, Pa.).

PVC Valves: After almost two years of preparation (CW, Nov. 17, '51), H. N. Hartwell and Sons, Inc. (Boston) is bringing out needle and globe valves made of unplasticized polyvinyl chloride. Now that the valves have been perfected, Hartwell says it can install complete piping systems for handling corrosive liquids. Like the rest of the Hartwell line, the valves are available in standard I.P.S. sizes ranging from 1/8 to 2 in.

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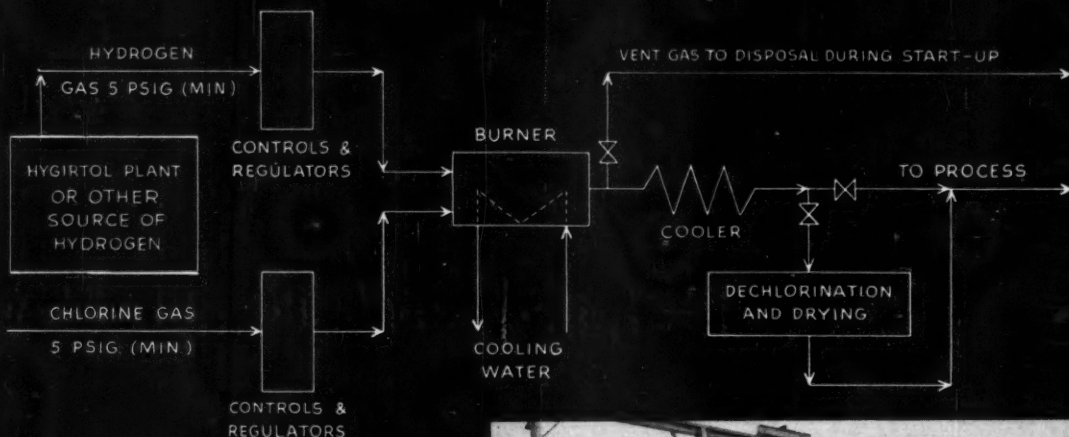
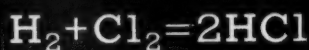
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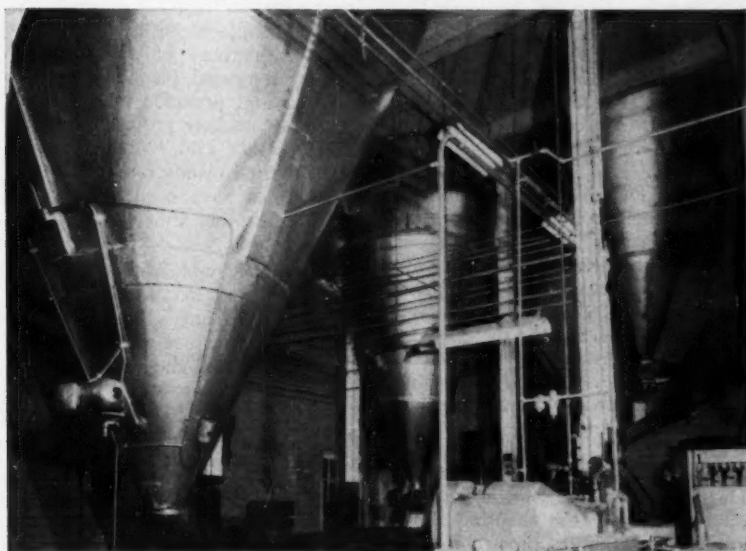
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EGG DRYING: For oxygen-free, nonbrowning eggs, enzymes.

Specificity Is the Sell

Dentrifice makers' trumpeting about enzyme inhibitors has diverted attention from the vital industry and home roles the enzymes now play.

Many are the industrial applications, however, and many are the potential ones. Food processing looks like the best bet, but other markets also beckon.

Anti-enzymes—as ballyhooed in dentrifice ads—are the attention-getters today. But vastly more important are industrial enzymes and those catering to the housewife. Almost overnight she has become conscious of enzymes through meat tenderizers, which get their "magic" quality from papain, a vegetable enzyme derived from the papaya melon.*

Typical of the home tenderizers, and perhaps the best known, is Adolph's. Aggressive, hard-selling makers, Adolph's Food Products (Los Angeles) points toward what it sees as a \$3-million retail tenderizer market. But others aren't to be left at the gate—3V (Three Vee Company, New York) will start a heavy promotional campaign before the month is up.

Though meat-loving Americans have welcomed enzymes into their homes, industry has long depended on them for hundreds of manufacturing processes. Biggest portion of the multimillion-dollar enzyme market: brewing and alcoholic fermentation.

* We're new at the art. For generations natives of the West Indies have made meat and poultry tender by wrapping them in papaya leaves.

Beer-Drinkers Delight: A liking for light beer obliges American brewers to use more enzymes than their European confreres. In the past, properly malted barley did the job of converting grain mashes to sugars. But to make beer light, today's brewers have to employ concentrations of rice or corn—called brewers' grits—so additional diastatic enzymes of microbiological origin are needed.

This means Americans get a beer low in solids and sugar content. European beers are richer, higher in calories, and darker.

And because Americans don't want a cloud in their beer when it's chilled, even more enzymes are required. The chill-proofing is accomplished with proteolytic enzymes, a process that dates back to 1911.

Beer's not the only beverage that depends on enzymes. Pectic enzymes were first used in the wine industry for clarifying purposes. Since then it has been found advantageous to add them earlier in the manufacturing process, either during fermentation or at the grape crusher. They also accelerate the aging of wine and the

development of a mature flavor.

Textiles, Too: Another large application of enzymes is in the textile industry. Here they are employed for desizing—they solubilize the starch with which fibers have been impregnated to increase their strength. (Similar enzymes are used to desize paper.)

Formerly, this operation couldn't be carried on at a temperature above 125 F., because the diastatic enzymes were not heat-stable. But in the past few years they have been improved to such an extent that desizing can now be achieved above 160 F. Not only has this speeded up the process, but it has cheapened it as well.

In leather making, enzymes give leather a silky, smooth grain and a desirable feel that can't be obtained by other means. Pancreatic, fungal, and bacterial proteases are principally used for this commercial "bating."

Enzymes promote uniformity, improve the texture and grain of breads, give it a whiter appearance. Their use in baking has greatly increased since 1950, when fungal amylases were included as an optional ingredient in the Federal Bread Standards.

Fruit juices, too, depend on these biochemical catalysts. It hasn't been long since cider was regarded as a seasonal drink only, because there was no known method of storing the juice that would prevent fermentation without spoiling the flavor. Now two enzymes, pectase and pectinase, remove the pectins that formerly caused the juice to ferment. They are used for a similar purpose in preparation of other juices and extracts.

Medicine Maker: For a long time it has been known that diastatic and proteolytic enzymes will make up for natural deficiencies of human digestive enzymes. But their medicinal use suffered a relapse when vitamins came along. Now, with the growing importance of geriatrics, their application is expected to increase.

A mucolytic enzyme, hyaluronidase, is widely used in hospitals today for the spreading of drug solutions after subcutaneous injections. Varidase—which contains two active enzymes, streptokinase and streptodornase—clears away clotted blood and dead tissue from wounds. Protein hydrolysates are given after severe operations and in cases of impaired digestion of proteins.

In the cheese industry, softening of cheese curd during ripening is principally due to proteolytic enzymes. And helping to accelerate the ripen-

ing process are pancreatic and other proteases.

One Job Only: Chemically speaking, enzymes are biocatalysts. Unlike acids and alkalies, which perform similar hydrolytic functions, they possess this advantage: they control only specific reactions.

Probably the three largest enzymes producers are Rohm & Haas, Takamine and Wallerstein. Rohm & Haas has a strong interest in the fruit juice field, Takamine in pharmaceuticals and food processing, and Wallerstein in yeast fermentation and chill-proofing. And all are closely concerned with baking.

So far no one has succeeded in synthesizing an enzyme. Hence, living matter (microorganisms, animal and vegetable tissue) is the sole source of supply. Just what the value of that supply is, no one firm will say, but it's generally agreed to amount to "several millions."

Eggs in One Basket: Egg drying has provided a fast growing outlet for a new enzyme system made by Takamine Labs. Takamine tags its preparation of glucose oxidase and catalase DeeO (Dee Gee), promotes it for desugaring eggs prior to drying—the enzyme prevents browning (CW, May 16). Eric Snyder, Takamine vice-president and research head, reports that consumption of dried egg solids in cake mixes has resulted in a rapid upswing in DeeO sales.

Under further investigation is possible use of glucose oxidase to eliminate browning of fruits and vegetables. Applications may also be in the processed food and beverage fields, where removal of residual oxygen is a problem.

Rohm & Haas thinks a big future lies ahead for its lactase-B. The goal: to up whey consumption.

When the fat in milk is removed, you get skim milk. When the enzyme, rennet, is added to skim milk, the result is cottage cheese and whey. At present a lot of whey isn't being utilized—it merely presents a disposal problem. However, some goes into animal feed—around 3% feed-weight. But if too much is added, animals get diarrhea.

Way With Whey: That's where lactase-B comes in. It converts the lactose in the whey to glucose and galactose, which are much more digestible than lactose.

National Dairy Products is now turning out a lactase of its own in ton quantities. It foresees the time when whey will constitute as much as 25% of animal and poultry feeds.

Rohm & Haas was originally interested in lactase-B for improving ice

cream's nutritional quality. To do this, the ratio of skim milk solids to milk fats must be increased. Formerly this has not been feasible. Reason: when the concentration of skim milk solids was increased above 11-11.5%, the milk sugar (lactose) tended to crystallize in hard needles, producing so-called "sandy" ice cream.

Now, Rohm & Haas explains, treatment of skim milk concentrates with lactase-B makes it possible to raise skim milk solids in ice cream mixes to 14% or higher. So far, ice cream manufacturers have not taken up the idea because of the added cost. But Rohm & Haas thinks the day isn't far off when they will, for, besides improving them nutritionally, breaking down the lactose also gives ice creams better body and texture.

About Face: Enzyme producers, rather unspectacular in the promotion of their products, are more than a little awed by the shouting about anti-enzymes that toothpaste makers are doing. As one producer wonderingly points out, it was only a couple of years ago that dentifrice makers were considering adding enzymes. The theory: enzymes would dissolve between-the-teeth food particles. But because enzymes would probably have to remain in the mouth an hour to accomplish this, the plan was finally dropped.

Anti-enzymes notwithstanding, enzyme manufacturers are quietly building up new markets for their unsynthetic, nature-made products.

Loin-Girding Time

The National Agricultural Chemicals Assn. celebrated its 20th birthday at Spring Lake, N.J., last fortnight. And though the setting was festive, and the weather sunny, industry problems clouded more than one member's brow.

Prime among the problems was shrinking profits. As retiring Pres. Arthur Mohr pointed out, the profit has for the most part gone out of the insecticide business.

In some ways, the situation seems anomalous. Mohr remarked that the 1953 demand for pesticides has been excellent—"more units—i.e., pounds and gallons of products—have been sold to date in 1953 than for the same period last year." Mohr's optimistic report was far from universally shared, however. A number of firms felt the volume moved was considerably below last year; one firm thought it was as much as 25% off. Too, industry's awareness of its own overcapacity has edged it into a price war that has taken all the joy out of selling. The

picture has been particularly dismal for small producers with high operating costs.

High manufacturing costs, as compared with those of the chemical industry in general, plagued the entire industry; and pesticide makers were up against another problem: product liability. Mohr said NACA members have reported claims for \$6,968,000; some claims have been settled, but others amounting to \$5,242,000 are still outstanding.

Goodwill Crop: Mohr's remarks gave substance to Association Secretary Lea Hitchner's five-point plan to stimulate a crop of consumer goodwill. Pointing out the pitfalls of adverse publicity, Hitchner urged:

- An expanded information program, aimed at giving the public the facts on pesticide hazards, and designed to minimize restrictive legislation.

- An expanded information-gathering program—give pesticide makers more data on crops in various areas, promote new uses and markets.

- A program for improvement of product quality, development of quality standards, and improved analytical methods.

- A promotional program to push American pesticides in world markets—better to meet foreign competition.

- A study of economic factors pertaining to the industry—credits, time of purchase, warehouse and storage customs, etc.

Single Shot: Pesticide makers listened to a panel discussion on use of combination insecticide-fertilizer mixes. The basic idea—to give the farmer an easily applied one-shot mixture that fertilizes and also kills soil insects—seems like a natural, particularly to insecticide makers.

But fertilizer producers don't appear to take to the idea; its inconveniences for the mixers seem to be the prime disadvantage. It's clear that before any insecticide-fertilizer combinations are offered on a large scale (and pesticide makers aren't giving up easily), a number of legal problems, both state and federal, must be worked out.

There were several changes in officers at the annual meeting. Installed in the presidency was Paul Mayfield, Hercules Powder Co. William Allen, Dow Chemical, succeeded Mayfield in the vice-presidency, and Lea Hitchner was retained as executive-secretary. Three new members were added to the board of directors: John Kennedy, Stauffer; Donald Murphy, Rohm & Haas; Gerald Romig, American Chemical Paint Co.



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SPECIALTIES

Hazards and Heat

Not all-new are the ideas behind Sherwin-Williams' two new industrial coatings (CW Newsletter, Sept. 19), but they're novel enough to keep competitors on their toes.

In its new, water-reducible coating, for example, S-W isn't the first to see the advantages of a fireproof, non-toxic paint that can be thinned with cheap, readily available tap water. But unlike the water-based coating worked out by Reichhold (CW, Sept. 19), S-W's paint forms an emulsion in water rather than a true solution.

S-W figures the emulsion will give a better film than any other method it could work out—claims excellent moisture, oil, acid and alkali resistance for its new enamel. Dipped or sprayed on, the coating is air-dried for 20 minutes, then baked 18 minutes at 300 F. Final film is said to char rather than burn in the presence of a blow-torch flame.

Applied cost of the enamel equals that of conventional coatings: though purchase price per gallon is 14-18% higher than that of ordinary paints, the user adds water rather than solvent, equalizes final cost.

Gap-Bridger: Hi Heat Enamel, S-W's other new product, is a coating claimed to withstand yellowing after extended exposure to temperatures of 500 F, at a cost less than half that of all-silicone enamels. And at 12-14¢/sq. ft., it narrows the gap between conventional baked enamels (6-7¢/sq. ft.) and porcelain enamels (60-65¢).

Based on silicone resins but modified with lower-cost resins of the alkyl type, Hi Heat is said to retain 75% of the heat-resisting, highly durable qualities of silicones. It can be sprayed or dipped on, is baked for 30 minutes at 400 F.

Though frank to admit that its new low-cost enamel doesn't have all the desirable qualities of all-silicone or porcelain coatings, S-W does feel it can tap a major market in coating for household appliances.

•
Plasticizer Boost: Hardesty Chemical Div., W. C. Hardesty Co., Inc., has added production facilities for manufacture of its plasticizer Harflex 500. Hardesty claims an improved product in its enlarged plant.

•
Hurrying Fall: Add to the list of defoliants a new "chemical frost" tagged Alphenol. Pioneer Chemical Associates (Denver) is selling the new product, a complex mixture of alkyl phenols combined with pentachloro-

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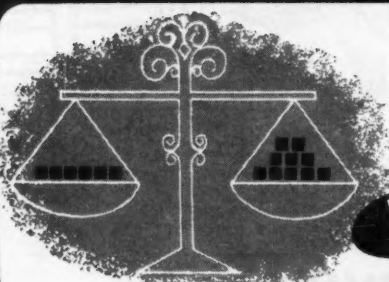
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SPECIALTIES

phenol. The combination is claimed to give a synergistic effect.

Two grades of the defoliant are now marketed: Alphenol (90) for cotton and soybeans—this is an oil-soluble concentrate; Alphenol (45), a general defoliant that can be diluted with either oil or water.

Alphenol was developed and manufactured by Great Lakes Solvents, Inc., Chicago, Ill.

Allied's Arcadian: Pelletized for uniformity and stabilized to prevent caking, Arcadian 12-12-12 fertilizer is now being sold by the Nitrogen Div., Allied Chemical & Dye Corp.

The new fertilizer, made by treating phosphate rock with nitric acid (CW, March 21), is made in Allied South Point, O., plant.

Tripled: Aalco Chemical Co. (St. Louis), producing synthetic detergents and sanitary supplies, has just moved to new quarters, tripled its manufacturing area.

Moly Mist: New product in an aerosol wrap is Lubri-Mist, made by Lubri-Mist Co., Inc. (Waukesha, Wis.). Basically molybdenum disulfide in a carrier (volatile in Lubri Mist #1, oily in #2), the new aerosol is offered for both industrial and household applications. Industrial applications include use as a mold release agent as well as for general lubrication.

Minor Mix: Tennessee Corp. (Atlanta, Ga.) is now producing a special mineral mix for fertilizer manufacturers. The new mix is designed to supply trace minerals for pasture fertilizers; Tennessee estimates that the additive will up fertilizing cost for the farmer about \$2.50 to \$5 per acre. Sold in multiwall paper bags, at a carload price of \$85/ton, the minerals are mixed in at a 50-100 lbs./ton fertilizer ratio.

Make 'Em Last: Claimed to give corrosion resistance to ferrous metals 12-24 times greater than conventional phosphate treatments, a new process called Endurion has been introduced commercially by Rust-Proofing and Metal Finishing Corp. (Cambridge, Mass.).

Pluses claimed for the process:

- Rustproofing durability on both oiled and uncoiled surfaces, measured by the salt-spray test, equals that of electroplated coatings.

- Protection can be applied uniformly to complicated shapes without "building up" threaded and close-fitting parts.

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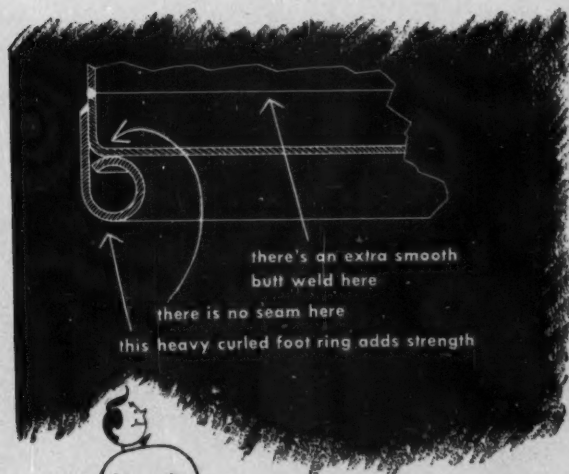
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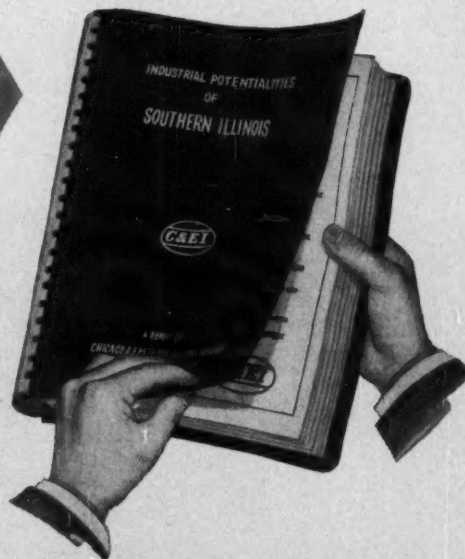
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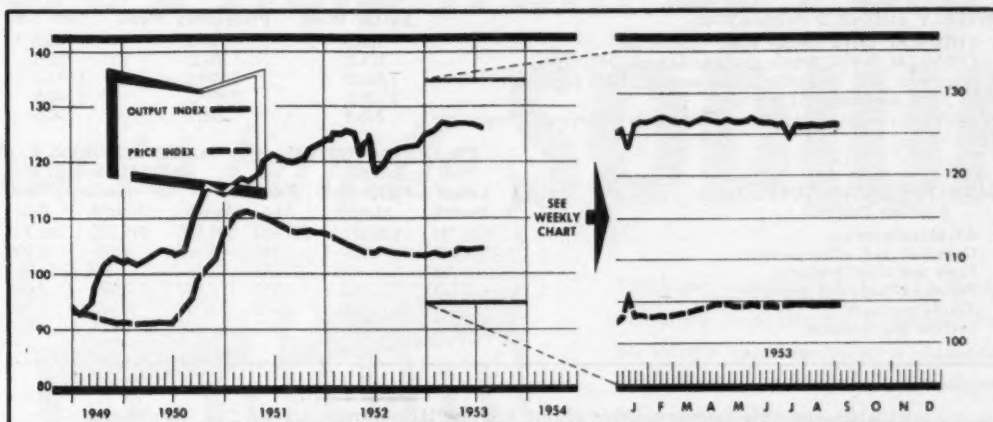
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MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Some apprehension, some optimism, some price hikes, a few declines—all contribute a bit to a mixed market as the third quarter draws to a close.

Though there's little indication of any general last-quarter slowdown in chemical movements, not a few buyers and sellers are reserving judgment as to just how brisk business will be.

Not hiding their disappointment in current business, however, pesticide makers and sellers have just about conceded that the 1953 season is over, and they're labeling it unsatisfactory. The last several weeks have seen most traders trying to liquidate stocks, in some cases with competition-whittled prices.

For instance, DDT producers admit that the current 23¢/lb. peg might slip down a few notches on any fair-size order. But BHC prices can't very well go any lower. At ¾¢/unit-lb., it has just about hit bottom. Production of BHC—and to a lesser extent DDT—has been severely cut back, and in some instances, completely stopped.

On the other hand, while demand is now dragging for weed control chemicals like 2,4-D and 2,4,5-T, a few optimists expect a step-up in sales before frost hits.

Ammonium sulfate sales are being slowed by lower-cost German and Belgian material. Competition from foreign sulfate has been rugged enough to cause a greater-than-normal stock accumulation at domestic plants.

Some build-up, of course, usually starts at this time as producers get ready to meet fertilizer makers' seasonal demands at year's end. But many producers' expectations of this future business are being dampened in view of the present unsettled market condition.

While some trade observers point to imported castor oil's lower prices as the reason behind last week's 1¢/lb. cut in domestic schedules, producers here maintain that the reduction stems from cheaper bean prices.

Whatever the downward pressure factor, consumers may now

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.3	126.2	122.6
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.9	104.9	102.5
Bituminous Coal Production (daily average, 1,000 tons)	1,580.0	1,594.0	1,971.0
Steel Ingot Production (1,000 tons)	2,120.0	2,060.0	2,160.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	240.8	245.7	240.0

MONTHLY INDICATORS—Trade (Million Dollars)

	MANUFACTURERS' SALES			MANUFACTURERS' INVENTORIES		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
All Manufacturing	\$26,721	\$26,172	\$21,858	\$45,670	\$45,525	\$42,748
Chemicals and allied products	1,743	1,734	1,560	3,166	3,122	2,995
Paper and allied products	768	734	650	942	976	1,007
Petroleum and coal products	2,115	2,268	1,956	2,817	2,789	2,683
Textile products	1,225	1,185	1,162	2,790	2,762	2,764
Leather and products	342	355	267	588	621	554

pick up foreign castor oil for about 19¢/lb., the domestic for 21¢. Crushers are insisting that the latter is firm, not subject to shading.

Some pyridine resellers are wielding price-shaving pencils, though makers are sticking to the established \$1.15 lb. figure despite a reversal of the tight supply-demand situation experienced earlier this year.

The reason coal tar and synthetic producers aren't losing too much sleep over easing conditions is an optimism-sprinkled belief that once-shelved (because of the previous shortage) pyridine end uses will soon take up the existing slack in supply. Some customers have already asked for earlier shipping dates on contract-bought material. That's a sure sign—to sellers at least—that business is picking up.

Not quite surging, but soon to be, is lithium chemical output from Foote Mineral's spanking-new Sunbright (Va.) plant.

Sunbright, fed from Kings Mountain (N. C.) spodumene deposits, is designed to turn out lithium chemicals equivalent to an estimated 5.25 million lbs. of lithium carbonate a year.

Continuing high are government demands for toluol. Coal tar producers have been tabbed for some 70% of their total output through September and October; the petroleum industry, for about 90% of its production. Most observers see no letup in the noncivilian take at least for the balance of the year.

Here's a good bet, though you won't get an official confirmation: nonmilitary consumers may not have as long a wait as they expect for more toluol. Better supply a few weeks ago—though now dried up—is regarded as a portent.

There are definitely no shortages in the nonferrous metal market. Lead and zinc buyers are sitting on their requisition books waiting for bottom prices. Domestic zinc producers, chipping away at base prices, are being plagued by foreign slashes.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending September 21, 1953

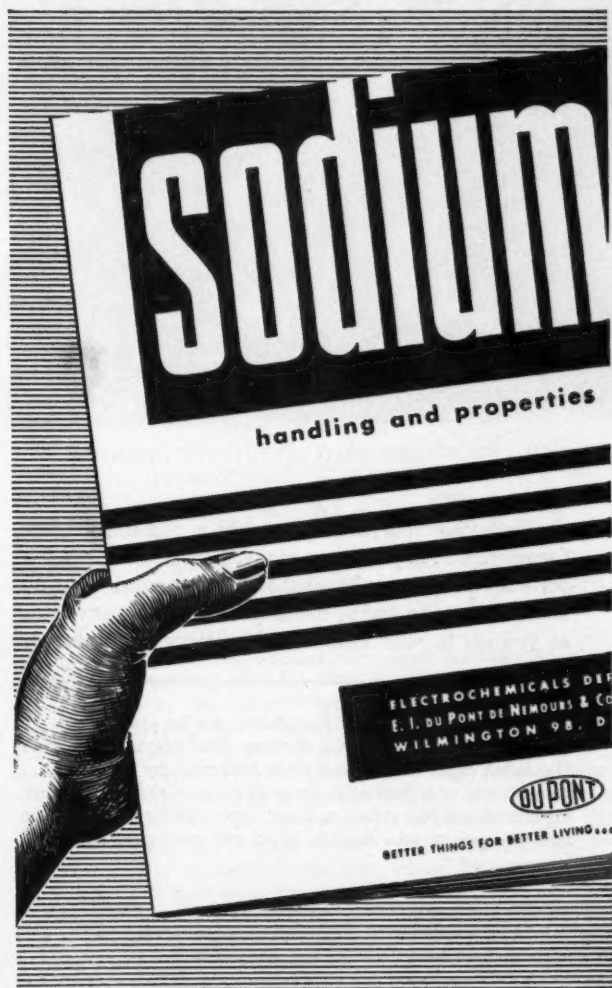
DOWN

	Change	New Price		Change	New Price
Castor oil, USP, tks.	\$.01	\$.21	Litharge, com'l powdr, bbls., c.l. wks	.005	.15
Lead, metal, prime NY	.005	.135	Potassium iodide drms.	.25	2.15

All prices per pound unless quantity is stated.


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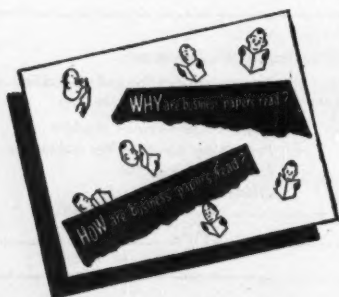
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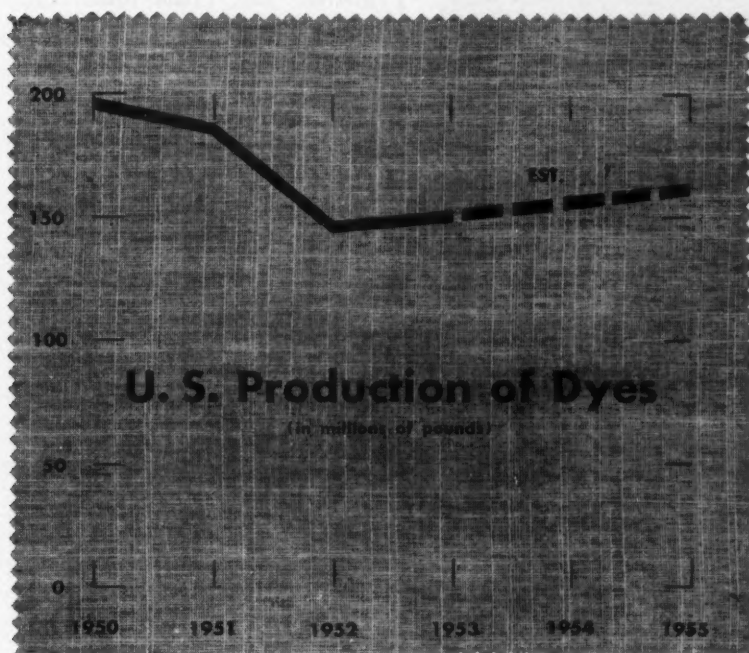


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One of a series of advertisements prepared by THE ASSOCIATED BUSINESS PUBLICATIONS





SKIDDING DYESTUFFS: Textile prospects are a slow but sure lift.

Better but Not Good

Despite the fast growing use of color in rubber and plastics, the dye-stuffs industry is still—and will continue to be—tied to the cotton apron strings of the textile trade. But whether the current slight stirring out of a long-time lethargy of the natural fabric market will develop into a strong lift under dyes is still moot.

By this week, however, color makers are far less pessimistic than they were in the pre-Korean slump period of 1949, or during last year's serious recession in the textile business. Indeed, some see their industry on the threshold of a long—though modest—incline toward happier days.

Few, though, will even venture a guess as to when—if ever—U.S. dye-stuffs manufacture will again approach 1947's peak 212-million-lbs. level.

Of more immediate concern is how much this year's demand will bend upward the skidding consumption curve that hit a low 145 million lbs. in 1952. That was 23% less than the 187 million lbs. produced in 1951, and some 26% less than 1950's 196 million.

Sales in 1952 amounted to about 149 million lbs. with a value of \$171 million. Compare that with the 160 million lbs. sold in 1951 for close to \$178 million. And although dyestuffs movement this year is expected to fall some 10 million lbs. under 1951.

chances are the dollar value will nestle closer to that year's level than to 1952's \$171 million. Reason is two-fold and basic:

- Average unit value has been rising steadily owing to the general increase in prices of most dyes;

- Output of the less expensive dyestuffs (e.g., sulfur dyes) continues to fall behind light-fast, wash-fast colors like the anthraquinone vats.

Consumption of the latter dyes is usually sparked by the military's demand for cotton uniform, suitings and fatigues, but their better fastness to light and frequent chlorine-spiked washings has also perked civilian interest. Nonmilitary use of anthraquinone vat-dyed cottons, however, is still not great enough to cushion the jolt when the armed services step away from the counter.

A case in point is last month's canceling of two government contracts, for a total of more than 6 million yds. of material, which still has some textile people shaking their heads.

It's pretty well established that the trend toward fast colors is not likely to veer. Not a few companies have in recent years dropped rafts of the cheaper, so-called "loss" colors from their lines. Confirmation, too, of the ultimate fabric consumer's shying away from less-fast items is Ciba's new \$17-million anthraquinone vat

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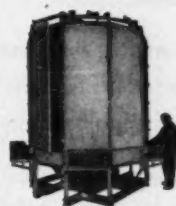
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MARKETS

dyestuffs plant (Toms River, N.J.) now going onstream.

Though sulfur dye makers have practically halved production over the last six or seven years, this group is by no means completely washed out for markets. Where light fastness or bleach-water washing is unimportant (raincoat fabrics, shoe linings, backings for wool and mohair fabrics, under-chair cambrics), the sulfur dyes still have the edge. Reason: moderate cost. (Average unit value last year: 33¢/lb. vs anthraquinone vats' \$1.46.)

This very reason is spurring research toward continuous vat-dyeing processes. Aim is to lower cost by striving for higher temperature and higher pressure to conserve material through better dye fixation as well as to effect faster, more uniform dyeing.

Not-so-Blue Denim: One dye not generally classified with vat dyestuffs is indigo, which has as its prime outlet blue cotton denims. Total industry production (from Du Pont, National Aniline, Dow) probably amounts to near-18 million lbs./year. Once exclusively made for overalls and work clothes, denim has, in the past few years, become increasingly popular for children's and adults casual wear.

One indication of the pepped-up demand is the whopping 26,000 yds./hour production rate now coming off the looms of top denim producer Cone Mills Corp. (Greensboro, N.C.).

That's enough to make more than 40 million pairs of overalls a year—almost a third of the nation's requirements.

Cotton Prop: Of the total U.S. dye production, nearly 85% is concentrated in four chemical classes (azo, anthraquinone vat, indigoid and thioindigoid, sulfur), and of the four the azos account for perhaps a third of that 85%.

It is in the azo field that the interdependence of the textile and dyestuffs industries is more clearly underscored, for chemically, nearly all direct dyes are azo products containing one or more sulfonic radicals, which impart water solubility. And by far the greatest outlet for direct dyes are cotton and rayon cloths. They give almost a complete range of colors from rich blacks to bright shades of all hues. There are other top-notch advantages that have shoved directs into the van of the dye field: easy and simple to apply;* give excellent penetration, even coverage, level dyeing; do not impair the luster or character of the material to be dyed.

At the moment, cotton dyers and finishers throughout the country are

* One reason why packaged dyes sold to housewives contain direct colors.

MARKETS

somewhat at variance as to just when the trade will undergo the long expected upturning. Some feel the pick-up will come within the next week or so, others don't expect a real spurt until late next month. That a market improvement is in the offing, however, is undoubted.

Equally convinced that better days are ahead are the converters, who cite the tremendous strike-off season now under way that should herald a tide of print orders. (Strike-offs are sample pieces showing artists' new patterns and designs; they're shown by converters for order-taking before production of the material.)

Any textile pickup this fall is too late, of course, to have any immediate effect on dye production. Consumption of dyestuffs usually runs some months ahead of actual appearance of the finished goods on the nation's fashion racks. Colors being purchased now, therefore, will blossom out in next year's Easter parade.

It's a question, though, whether a brighter domestic demand will do much to assuage producers' ruffled resentment at the increasing loss of overseas markets. The high-gear German dyestuff industry is a tough competitor. Also battling for world markets is French, Italian, British, Swiss—and now-resurging Japanese—dye output. Rigid import controls set up by most other countries are effectively blocking U.S. dyestuffs as well as dyed fabrics.

Dollar-short nations (India, Argentina, for example), countries labeled out-of-bounds to U.S. sellers (China), and hard-money countries granted price concessions by European producers all have contributed to America's sluggish export business.

Enough for a Long Time: In the U.S. some six or seven (of the more than 50) dyestuffs producers* account for 75-80% of total production. Within a short time, expansion—in addition to Ciba's—by Pittsburgh Coke & Chemical (\$10-million plant), and Arnold, Hoffman (\$5-million installation) will up this country's dyestuffs capacity to produce perhaps 30% more color than will be needed in two-three years.

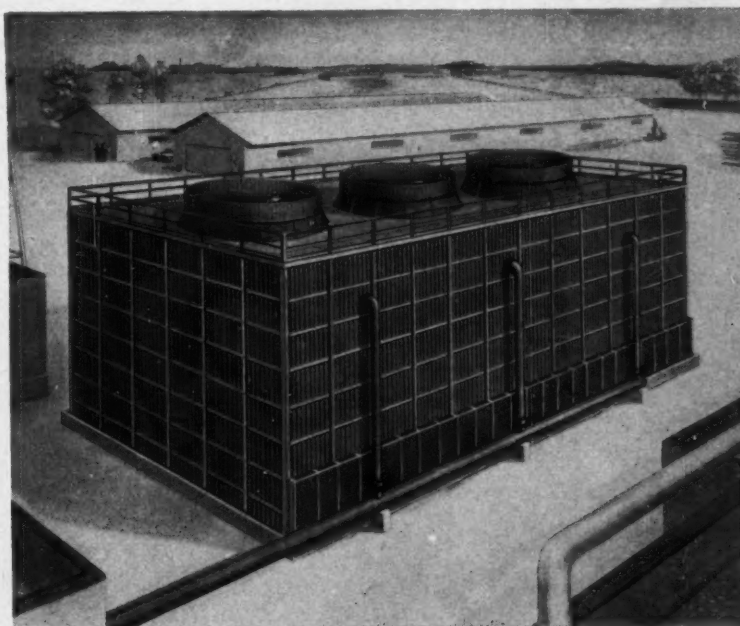
But not a few observers regard that production potential as reassuring. Increased population, burgeoning new plastics uses (larger, colored molded products), water-dilutable pigment printing pastes for textiles, the possible resurgence of military needs—some or all could easily grow into that loose-fitting capacity.

* Dupont, General Aniline, National Aniline, Calco, Ciba and American Aniline, are among the top.

SANTA FE'S NEW "MD-54" COOLING TOWER CUTS INITIAL COSTS, INCREASES PERFORMANCE

Los Angeles . . . Cooling tower design has undergone a number of significant improvements. After holding faithfully to the basic pattern, the Santa Fe Tank & Tower Company, Los Angeles, has taken an aggressive step toward developing a cooling tower with a substantially improved construction design. The newly designed tower is said to

the "MD-54" two separate and distinct standard types of wetted surfaces. After a series of extensive tests, it was found that one surface is best suited to lowest first cost, and the other surface to the lowest evaluated cost on an amortized basis. This makes the "MD-54" the most adaptable to meet the requirements of each individual plant.



require fewer parts for construction, which in turn, allows for faster erection and less maintenance.

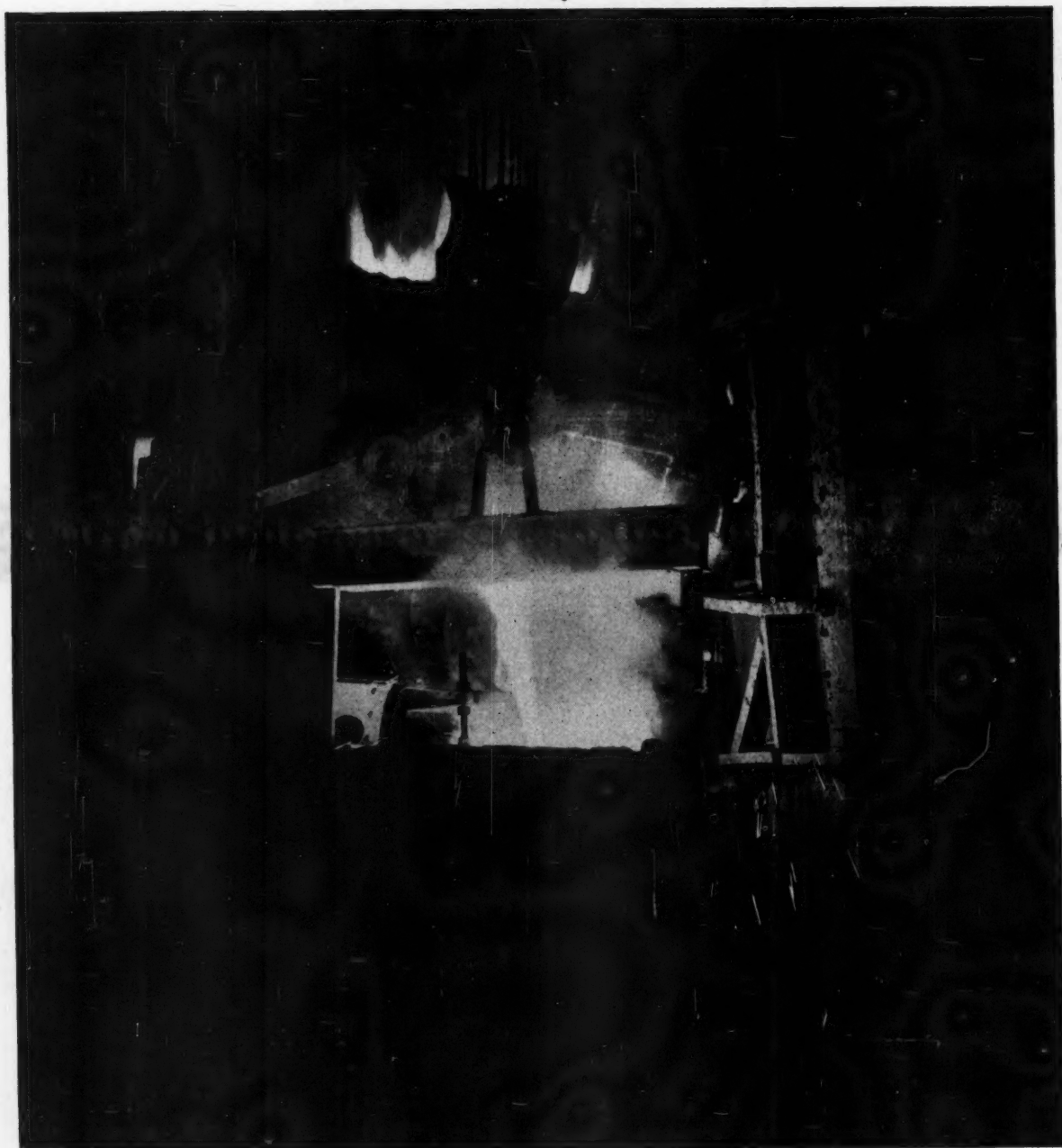
Santa Fe engineers branded their new tower the "MD-54" which is the result of a series of laboratory and field tests that measured all performance factors in relation to its new structural features. Simplified construction and better utilization of materials in the "MD-54" is the key to the new design and improved performance.

Santa Fe engineers have designed for

According to Santa Fe, the basic design of the "MD-54" cooling tower allows for the largest possible range of size variations.

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LUM, DUFFY, DRAKE: They set up technical service.

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Assume, if you will, that you're making a line of chemicals requiring highly specialized sales service. You are in a position to break into what looks like a promising, but competitive, related field. Moreover, the new venture calls for your tackling for the first time the problem of consumer acceptance in addition to servicing industrial applications. What's your plan of attack?

Last week, in the strictly nonindustrial Cumberland Valley atmosphere at Bedford Springs, Pa., Pennsylvania Salt Co. launched a full-scale bid for its now-come-of-age paint-bonding and rust- and wear-resistant phosphate coating, Fosbond. Through 3 days and some 25 talks, the Pennsalt sales staff was briefed on the past, present and future of Fosbond.

Among other items on the agenda was a panorama of the planning, fort, foresight that go into laying a groundwork for a new sales line.

Task Defined: Frank Lucard, sales development manager, outlined the ramifications that had to be tracked down in order, as Lucard put it, "to develop an integrated 'package' of Fosbond products for transfer to Pennsalt's line sales organization."

It was nearly three years ago that Pennsalt executives came to the decision that it might be desirable "to

explore in the direction" of phosphate coatings for paint bonding products.

According to Joseph Duffy, Jr., sales manager for the already established lines of related Fos Products, the paint-bonding idea crystallized from two principal suggestions:

- Already working in the field of metal cleaners, they found them-

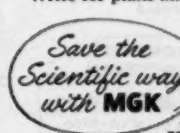


LUCARD: He built a "package."

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selves bumping into problems of the subsequent step—i.e., phosphating.

• Metal-working customers of their related Foscoat (for cold steel extrusion) wondered why they did not offer the paint-bonding coating.

From this tentative beginning, Lucard, working under the guidance of Vice-President of Sales William Drake, was assigned the task of weaving together the many threads of sales development for the new project. His job was that of coordinating the efforts and talents of the Pennsalt team members; furthermore, he was to project a timetable that would "wrap up" the Fosbond "package," without loose ends, for delivery to the sales force some unnamed months or years hence.

Task Force: Falling back first upon company experience, Lucard called on Duffy. With Duffy's help a technical service group, recruited principally from the regular sales force, was formed and turned over to newly assigned product supervisor John Lum.

Under the over-all plan, Lum's group played (and will continue to play) a key part, for behind this task force setup was the basic Pennsalt conviction that the biggest factor in selling Fosbond would be service.

As Duffy expressed it, "If, in a competitive field, other factors can often be nearly equal, it seems only logical that a good share of business will go to whoever offers the best service."

"With this in mind, we are backing each line salesman with an assigned member of the technical service group."

First Things: But before Pennsalt's men could go out and offer service, it was Lum's job, in the words of Lucard, "to industrially test and prove, on a cost-performance basis, a complete line of paint-bond chemicals and supplementary cleaners."

So, for over two years, the technical service group solicited field tests and carried out cooperative programs in a representative variety of industries related to the metal finishing

Check Points Along the Route

- ✓ Study of paint-bond chemical markets with respect to: (a) locations; (b) volume
- ✓ Initiate cooperative programs with potential customer industries
- ✓ Develop and train technical service group and product supervisor
- ✓ Test industrially, on cost-performance basis, a complete line of paint-bond chemicals and supplementary cleaners
- ✓ Study marketing and merchandising aspects with respect to: (a) distribution practices; (b) competitive situation; (c) customer service practices; (d) product types and trends of use
- ✓ Prepare descriptive literature for sale of Fosbond, such as: (a) technical bulletins; (b) price schedules
- ✓ Initiate an advertising and promotion program
- ✓ Present Fosbond "package" to sales staff

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*Reg. U. S. Pat. Off.

This announcement is neither an offer to sell nor a solicitation of an offer to buy any of these Securities. The offer is made only by the Prospectus.

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Due September 15, 1973

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September 16, 1953.

DISTRIBUTION

field. Unhampered (as emphasized by Duffy) by sales quotas, they picked and chose applications according to representative types in order to cover the existing principal fields.

Even before the testing went into high gear, however, another team was set to work on even more basic problems. The market research department was tapped for the job of blocking out the total Fosbond potential. As a result, a comprehensive field-by-field and area-by-area report was compiled and turned over to the management.

On the basis of the market research conclusions, a decision to enter the field was established. The same report was then turned over to Lum's group to point the way for the field testing.

Outside Help: A little later in the game, an entirely different sort of survey was carried out. Realizing, of course, from the beginning, that paint-bonding coatings would raise problems of merchandising entirely



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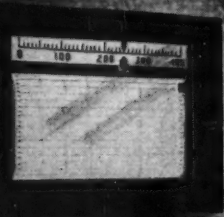
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RESEARCH LEADER SPRING: He furnished the fundamentals.



PROMOTION MANAGER HURLEY: He designed an emblem.

new to them, the Pennsalt sales development team called for outside assistance.

They commissioned a sales and planning survey to learn the advertising and merchandising program needs for Fosbond.

Then, armed with the detailed suggestions of the survey, Paul Hurley, director of advertising and sales promotion, went into action.

Hurley found that his work of backing up the sales force efforts fell into two broad sales and advertising jobs. He found he had to explain Fosbond to:

- Primary users (meaning manufacturers of both civilian and the highly significant ordnance products).
- Wholesalers and dealers in Fosbond items, e.g., distributors of refrigerators, stoves, metal cabinets, furniture, etc.—plus their customers, the ultimate consumers.

For the Consumer: It was in handling the promotion to the second (wholesaler-detailer-consumer) group that Hurley and Pennsalt found themselves on new ground.

From further huddles with merchandising experts, a central idea for basing the entire program was evolved: a Fosbond emblem, to be affixed to the finished article as a seal, was created. Its twofold purpose: (1) add a "plus" prestige value to the manufacturer's product, (2) reassure the consumer that the surface of the article had been properly prepared before painting.

Wrapping It Up: About three months ago, the go-ahead signal was given to complete the details for a September sales launching.

This meant the windup of the sales development plans. In particular:

- The manufacturing division, under Hugh Land, was alerted to be ready to step up production.
- Instruction manuals, technical bulletins, price schedules and other

literature were given final drafts.

- Advertising schedules were arranged.

And, reflecting the new sales lines:

- A shift over to a newly organized field supervisor sales system was completed.

This, then, was the "package" turned over to Duffy and his sales force at Bedford Springs last week.

Three new titles in American Management Assn.'s packaging series booklets are now available:

Aids to Efficient Packaging Operations; Advances in Packaging Material and Design; Practical Problems of Packing and Handling. They may be obtained for \$1.25 each from AMA's New York office.

Here are other recent literature offerings:

- Cellulose acetate properties and uses are described in a revised, just-issued Hercules Powder Co. brochure. Data include utilization of new solvents, plasticizers, resins, specialty lacquers.

- A Clays Data Book is offered by H. C. Spinks Clay Co., First National Bank Bldg., Cincinnati 2, O.

Boston Office: Monsanto Chemical Co.'s Phosphate Div. has established a district sales office with Donald Dunwoody of New York City as manager. The new district includes all New England except that part of Connecticut west of the Connecticut River.

West Coast Appointment: William C. Loughlin & Co., San Francisco, is now sole representative in California for the Concord Chemical Co.'s (Moorestown, N.J.) line of industrial waxes and cresylic acid.

Agencies: Universal Detergents, Inc., Long Beach, Calif., has appointed two new sales agencies: Donald Mc-

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DISTRIBUTION . . .

Kay Smith, Inc., Cleveland, and Emmet D. Griffin, Jr., Pittsburgh.

In Canada: Harrisons and Crosfield, with sales offices in Halifax, Montreal, Toronto, Winnipeg, Calgary, Edmonton and Vancouver, is now exclusive selling agent in Canada for Canada Packers Ltd.'s new Fatty Acids Div.

Soda Ash: Beginning Oct. 1, Mathieson Chemical Corp. will offer a new-type coarse light soda ash from production at its Saltville, Va., plant. Priced at \$28/ton in bulk cars, f.o.b. plant, the new material is suggested for use in glass manufacture.

Nylon Trademark: Du Pont's name for its nylon filament yarn is now officially "Tynex". According to a company spokesman, Du Pont has adopted the new name to aid consumers in distinguishing between Du Pont and competitive nylon material.



"Sandwich" Box

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